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Electrofishing data summaries for Catamaran Brook, New Brunswick, 1990-2002

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**Canadian Data Report of
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Canadian Data Report of
Fisheries and Aquatic Sciences 1130

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New Brunswick, 1990-2002¹

by

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ABSTRACT

Mitchell, S., Fraser, A., Hardie, P., and Cunjak, R. A. Electrofishing data summaries for Catamaran Brook, New Brunswick, 1990-2002. Can. Data Rep. Fish Aquat. Sci. 1130. x + 69 p.

The Catamaran Brook Habitat Research Project was initiated in 1990 to study large-scale ecosystem processes occurring in a forested sub-basin of the Miramichi River drainage in central New Brunswick, Canada. The impact of forestry on river habitats and, in particular, fish species has always been a concern in the region due to the income derived both from Atlantic salmon (*Salmo salar*) sport fishing and from forestry activities. The study was designed to examine interactions between forestry activities and stream conditions and link environmental conditions with fish populations within Catamaran Brook. One component of the study has been to estimate fish population size in four reaches of the brook, each reflecting differing environmental conditions such as water temperature and geomorphology. This report is a summary of the electrofishing data collected between 1990 and 2002 but in no way represents the total amount of data collected from these biannual sampling periods. Only major trends in fish populations, with emphasis on Atlantic salmon, are presented. Eighteen fish species have been described within Catamaran Brook, but the dominant species has been Atlantic salmon in terms of biomass and density. This report is one of many reports and scientific papers produced by this project in an attempt to better understand the ecology of stream fishes.

RÉSUMÉ

Mitchell, S., Fraser, A., Hardie, P., and Cunjak, R. A. Electrofishing data summaries for Catamaran Brook, New Brunswick, 1990-2002. Can. Data Rep. Fish Aquat. Sci. 1130. x +69 p.

Le projet du ruisseau Catamaran débuta en 1990 afin d'étudier les processus et écosystèmes à grande échelle dans les bassins forestiers de la rivière Miramichi située au centre du Nouveau-Brunswick, Canada. L'impact des activités forestières sur l'habitat aquatique et en particulier sur les espèces de poissons a toujours été d'intérêt dans cette région dû à l'aspect économique de la pêche sportive du saumon de l'Atlantique (*Salmo salar*) ainsi que de l'industrie forestière. Cette étude a pour objectif d'étudier les interactions entre les activités forestières et les conditions en rivières afin de comprendre les liens entre les conditions environnementales et les populations de poisson au ruisseau Catamaran. L'estimation des populations de poisson est une composante de cette étude effectuée sur quatre tronçons du ruisseau, chacun reflétant différentes conditions environnementales de température de l'eau et de géomorphologie de rivière. Ce rapport présente un sommaire des données de la pêche électrique recueillie de 1990 à 2002, toutefois ces données ne représentent pas la totalité des données disponibles durant les relevés biannuels au ruisseau. D'autre part, seulement les tendances globales des populations y sont présentées avec une emphase sur le saumon de l'Atlantique. Au total, dix-huit espèces de poisson sont observées au ruisseau Catamaran, alors que des données présentées dans ce rapport porte sur la biomasse et la densité de l'espèce dominant seulement, soit le saumon de l'Atlantique. Ce rapport existe parmi plusieurs autres rapports et articles réalisés dans le cadre de ce projet et dans le but de mieux comprendre l'écologie ichtyologique des rivières.

1.0 INTRODUCTION:

Atlantic salmon (*Salmo salar*) populations have undergone declines over much of their range in eastern Canada and the United States. The causes of such declines are multifaceted and complex, including natural (e.g. global warming, ocean conditions) and anthropogenic (e.g. forestry practices, acid rain, urbanization, etc.) forces. To assess the effects of one of these forces (forest harvesting) a biological monitoring program at Catamaran Brook has been conducted since 1990 (see Cunjak et al. 1990 and 1993 for description), and has produced a substantial amount of data with regard to ecosystem processes and population dynamics of the various fish species that inhabit the brook. The general objective of this long-term study is to compare stream hydrological and biological conditions before and after forest harvesting. A 15-year study design was developed with five years (1990-1994) designated as preharvest, five years (1995-1999) harvest, and five years (2000-2004) postharvest. The results from this study will produce a better understanding of long-term biological and environmental variation and the impacts of forestry activities on population dynamics, patterns of fish movement and other environmental conditions (Cunjak et al. 1990). Bi-annual electrofishing of a number of permanent sites over 13 years has resulted in an extensive data set of fish abundance and density estimates which will be critical in future development of detailed understanding of fish population dynamics. The data presented here is a summary of these electrofishing results (fish community composition, salmon density, size, weight and biomass), detailing particularly Atlantic salmon, from the initiation of the project in 1990 to the most recent year of data collection (2002). Long-term data sets with consistent sampling are very rare. This study, having such a data set focused on the ecosystem rather than one species, is one.

2.0 STUDY AREA:

Catamaran Brook (Figure 1) is a third order tributary of the Little Southwest Miramichi River, located in central New Brunswick (46 52.7N, 66 06.0W). The brook is 20.5 km in length and drains an area of approximately 52 km². A detailed description is provided in Cunjak et al. (1990 and 1993). The stream was divided into four reaches (Lower, Gorge, Middle, and Upper; Figure 1) representing differing geomorphological and hydrological conditions. The estimated mean annual discharge in the lower reach is 1.23 m³/s. Eighteen fish species have been identified within the system (Table 1).

3.0 METHODS:

Electrofishing sites were selected within each of the four reaches prior to the commencement of the study to reflect suspected impacts: a) at the harvest sites, b) downstream of harvest, and c) upstream of harvest (control) (see Cunjak et al. 1993 for locations of harvest blocks). Within each reach, two electrofishing sites (replicates) were selected for each habitat type (riffle, run, flat, pool and bedrock run where

applicable) (Appendix 1; see also Figure 1 for locations of sites). Each site was sampled twice a year, once over a period of two weeks in July (summer) using two barrier nets (one at the upstream limit of the habitat type and the second at the downstream limit). The second sampling period was conducted in the autumn after water temperature had declined to less than 7°C. Fish sampling at this time allowed assessment of population size of fish in their winter habitat (to allow contrast with the summer sampling), and to provide information on growth over the year. The autumn sampling used only one downstream barrier net due to the difficulty of keeping barrier nets erect as the autumn fallen leaves accumulate in the stream. The single barrier net is assumed to be adequate at low water temperature as the fish have moved into their winter habitat and are not as active (Cunjak, 1988; Rimmer and Paim 1990), and the electrofishing crew moves upstream to downstream, pushing fish ahead of them into the downstream net.

Electrofishing was conducted using a Smith Root electrofisher (various models over 13 years) with the unit set at I-5, 500V (60 Hz). A crew of four people was considered the minimum for an electrofishing crew, one person electrofishing, one using a dipnet, and two people holding a lip seine. Generally, at least three passes were made through the site but occasionally up to six passes were required to ensure a reasonable regression for the population estimate. Some sites were not sampled during some years due to weather conditions (e.g., early freeze-up) or high water conditions during the autumn sampling. In addition, in 1990, the lip seine was not used. During the sampling, captured fish were identified to species, measured (total or fork length depending on species), and weighed using a digital scale. A visual inspection was also conducted noting incidence of leeches, physical damage or fungus, and precocious salmon parr. Precociousness was determined by expression of milt following gentle ventral pressure applied from anterior to posterior. Following the final electrofishing sweep, the site was measured by taking one or two length and three to five stream width measurements to calculate the sampled area in square meters (Appendices 2 and 3). Water temperature, effort measured in minutes or shocking seconds, time of day, ice cover if applicable, names of crew, and any other pertinent information such as occurrences of amphibians were also recorded. Electrofishing was not conducted if water temperature exceeded 21°C for most cases, due to the high mortality of shocked fish above this temperature.

4.0 DATA SUMMARY:

The amount of data collected during the electrofishing surveys is substantial (13 years, two seasons, and 30 to 32 sites). Therefore data are presented in a summary format focusing on various aspects of fish populations within Catamaran Brook. Specifically, data are presented in four components:

- (a) Fish community composition illustrating species richness and proportion of species.
- (b) Fish abundance indicating density ($\#/100 \text{ m}^2$) of total fish and Atlantic salmon age 0+, 1+, 2+ and all ages combined.

- (c) Fish size expressed as fork length and weight of age 0+, 1+, and 2+ salmon. Biomass has also been estimated for these age classes, total salmon, and total fish.
- (d) Numbers and proportions of age 1+ and 2+ precocious parr and locations of occurrence.

4.0 a) FISH COMMUNITY COMPOSITION: The species richness is presented as mean number of species within each habitat type and reach in Table 2. Mean proportional representations of each species within each habitat type and reach are presented in Table 3. The mean number of species within a habitat type ranges between 2.76 (Gorge riffle) and 6.61 (Lower pool) (Table 2) with Atlantic salmon, brook trout (*Salvelinus fontinalis*), slimy sculpin (*Cottus cognatus*), black nose dace *Rhinichthys atratulus*, and lake chub (*Couesius plumbeus*) forming the greatest proportion of numbers of individuals in all habitat types (Table 3).

4.0 b) FISH ABUNDANCE: Density (#/100 m²) of total fish, age 0+, 1+, and ≥2+ salmon, and total salmon are provided for each habitat type within each reach for summer and autumn sampling of each year in Tables 4 to 10 (see Appendix 1 for site identification). Age class (0+, 1+, 2+) of salmon was estimated by length frequency analysis for each reach within each season and year (see Appendix 4). Only when n>50 measured fish were length was length frequency analysis conducted. Catamaran Brook smolts have a modal age of 2-3 years (Cunjak et al. 1993), and thus the age class 2+ also includes older individuals (i.e., age 3+) as well. Density estimates for total salmon (all ages combined) have standard error associated with them; the individual salmon ages do not have statistical bounds on the estimator (i.e., standard deviations or confidence intervals) as the density of an age class was estimated by multiplying the total salmon density of habitat type/season/year combination by the proportion of total salmon represented by each age group (which was estimated without bounds). Such a procedure does not easily lend itself to estimation of bounds.

4.0 c) FISH SIZE: Fork length (cm; Tables 11 to 16) and weight (g; Tables 17 to 22) for ages 0+, 1+, 2+ salmon are presented by habitat type within reach for each season between 1990 and 2002. Estimates of biomass for 0+ (Tables 23 and 24), 1+ (Tables 25 and 26), 2+ (Tables 27 and 28), total salmon (Tables 29 and 30), and total fish (Tables 31 and 32) are presented. Similar to the estimates of density for the age classes of the salmon, bounds on the estimators of biomass are not included. Biomass for salmon ages was estimated by multiplying mean fish weight (of each age class/habitat type/season/year) by the corresponding calculated density for that combination. Total salmon biomass (Tables 29 and 30) was calculated merely as the sum of the individual age biomasses. Total fish biomass was calculated by summing the total salmon biomass and total non-salmon biomass (i.e., biomass of all other fish species combined). Non-salmon biomass was estimated as non-salmon fish density (estimated by subtracting density of salmon from total fish density) multiplied by the median fish weight for all non-salmon fish species combined. Median weight was used in place of mean weight as a relatively few large bodied fish (e.g., brook trout and lake chub) skewed the estimated

mean value high relative to the median. Density and median weight were averaged between replicates of habitat types prior to biomass calculations.

Additionally, density, weight and fork length for the individual age classes of salmon (i.e., ages 0+, 1+, 2+) pooled over sample sites within a reach are provided in Tables 33 to 35.

4.0 d) PRECOCIOUS PARR: Precocious parr were tabulated based on the autumn electrofishing results only as expression of milt does not occur in the summer. Total numbers of parr and precocious parr for the entire brook are presented in Figure 3, with a breakdown by age class in Figures 4 and 5 for each year. Proportions (expressed as percentage) of precocious to non-precocious parr were calculated for each reach by dividing the numbers of parr that were precocious by the total number of parr captured. These results are presented in Figure 6.

ACKNOWLEDGMENTS

The electrofishing effort is usually measured in minutes or seconds, but to accumulate the amount of data collected to date requires somewhat more. To properly list all who have participated would be difficult, so to anyone who has spent their time helping collect this valuable data set, a heartfelt thank you. This kind of dedication to help study a declining species has been given freely by both regular staff and their friends, significant others, and other volunteers who have helped make this kind of project possible. The major source of funding for this project has come from the Department of Fisheries and Oceans, Science Branch, Moncton, N.B. The project has had the good fortune of support from government agencies, universities, community colleges, and many other non-governmental organizations. The Science and Technology Internship program has been a substantial contributor to the project, providing funding for a technician as well as for other staff. Miramichi Pulp and Paper, Inc. was also a significant factor in getting the project off the ground, and the tradition of industry cooperation has continued with UPM-Kymmene contributing time, materials, and equipment. A camp manager position has been funded each year by the New Brunswick Environmental Trust Fund, an absolute necessity to keep things functioning properly. We would also like to thank the Miramichi Salmon Association for contributing each year to the project. Additionally, many person hours were contributed by students from the New Brunswick Community Colleges' (Miramichi and Bathurst) Environmental Technology programs as well as Holland College's (Summerside, P.E.I.) Renewable Resource Management Program. These educational institutions have used Catamaran Brook as a training site for its students for on-the-job training with tremendous mutual benefit. Funding has also been provided by NSERC and the Canada Research Chairs Program. Finally, we would like to acknowledge the constructive comments and suggestions provided by the reviewers M. Clement and D. Caissie.

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Table 1: List of fish species collected in Catamaran Brook, New Brunswick, 1990-2002.

Family	Common Name	Scientific Name
Salmonidae	Atlantic salmon	<i>Salmo salar</i>
	Brook trout	<i>Salvelinus fontinalis</i>
	Brown trout ¹	<i>Salmo trutta</i>
Cyprinidae	Blacknose dace	<i>Rhinichthys atratulus</i>
	Creek chub	<i>Semotilus atromaculatus</i>
	Lake chub	<i>Couesius plumbeus</i>
	Northern redbelly dace	<i>Chrosomus eos</i>
	Finescale dace	<i>Chrosomus neogaeus</i>
	Common shiner	<i>Notropis cornutus</i>
	Golden shiner	<i>Notemigonus crysoleucas</i>
Catostomidae	White sucker	<i>Catostomus commersoni</i>
Clupeidae	Gaspereau ¹	<i>Alosa pseudoharengus</i>
Cottidae	Slimy sculpin	<i>Cottus cognatus</i>
Ictaluridae	Brown bullhead ¹	<i>Ictalurus nebulosus</i>
Gasterostiidae	Threespine stickleback	<i>Gasterosteus aculeatus</i>
Percidae	Yellow perch ¹	<i>Perca flavescens</i>
Anguillidae	American eel	<i>Anguilla rostrata</i>
Petromyzontidae	Sea lamprey	<i>Petromyzon marinus</i>

¹ = rare; < 5 specimens

Table 2: Mean number, $\pm$ SD, of fish species present in each habitat type of each reach (seasons combined) in Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. np = habitat type not present/sampled in this reach.

	Bedrock Run	Run	Riffle	Flat	Pool
Lower Reach	4.68 $\pm$ 1.47 (48)	5.2 $\pm$ 1.36 (48)	3.96 $\pm$ 1.21 (50)	5.76 $\pm$ 1.58 (46)	6.61 $\pm$ 1.12 (13)
Gorge Reach	5.25 $\pm$ 2.03 (43)	4.44 $\pm$ 1.07 (43)	2.76 $\pm$ 0.82 (42)	np	np
Middle Reach	np	3.5 $\pm$ 1.19 (80)	3.73 $\pm$ 0.66 (52)	4.28 $\pm$ 0.7 (49)	4.71 $\pm$ 0.66 (35)
Upper Reach	np	3.25 $\pm$ 0.97 (91)	np	np	3.14 $\pm$ 1.15 (21)
All Reaches	4.95 $\pm$ 1.77 (91)	3.85 $\pm$ 1.34 (273)	3.52 $\pm$ 1.05 (143)	5.0 $\pm$ 1.41 (95)	4.63 $\pm$ 1.48 (68)

Table 3: Mean proportion of species representation, $\pm$ SD, by habitat type and reach in Catamaran Brook (seasons combined), 1990-2002. Bracketed values indicate number of fish used in calculation.

Reach	Habitat Type	Atlantic salmon	Brook trout	Slimy sculpin	Black nose dace	White sucker	Lake chub	Creek chub	Chub sp ¹
Lower Reach	LBRU	0.49 $\pm$ 0.24 (48)	0.03 $\pm$ 0.03 (30)	0.1 $\pm$ 0.08 (21)	0.29 $\pm$ 0.16 (47)	0.08 $\pm$ 0.07 (18)	0.13 $\pm$ 0.1 (35)	0.01 $\pm$ 0.01 (2)	0.22 (1)
	LRU	0.58 $\pm$ 0.26 (50)	0.02 $\pm$ 0.01 (41)	0.03 $\pm$ 0.04 (21)	0.3 $\pm$ 0.21 (47)	0.02 $\pm$ 0.02 (22)	0.04 $\pm$ 0.03 (35)	0.01 $\pm$ 0.01 (2)	0.03 $\pm$ 0.05 (2)
	LRI	0.82 $\pm$ 0.13 (50)	0.05 $\pm$ 0.03 (42)	0.06 $\pm$ 0.06 (29)	0.07 $\pm$ 0.07 (37)	0.02 $\pm$ 0.01 (6)	0.03 $\pm$ 0.02 (17)	0	0
	LF	0.56 $\pm$ 0.25 (46)	0.04 $\pm$ 0.04 (43)	0.03 $\pm$ 0.02 (15)	0.28 $\pm$ 0.19 (45)	0.04 $\pm$ 0.05 (21)	0.02 $\pm$ 0.01 (24)	0.03 $\pm$ 0.01 (11)	0
	LPI	0.34 $\pm$ 0.21 (13)	0.03 $\pm$ 0.04 (13)	0.01 $\pm$ <0.01 (5)	0.37 $\pm$ 0.17 (13)	0.08 $\pm$ 0.11 (11)	0.14 $\pm$ 0.08 (13)	0.01 $\pm$ 0.01 (2)	0
Gorge Reach	GBRU	0.74 $\pm$ 0.21 (43)	0.02 $\pm$ 0.02 (25)	0.03 $\pm$ 0.04 (36)	0.14 $\pm$ 0.13 (39)	0.03 $\pm$ 0.02 (12)	0.07 $\pm$ 0.09 (23)	0.01 $\pm$ <0.01 (7)	0.11 (1)
	GRU	0.83 $\pm$ 0.14 (45)	0.02 $\pm$ 0.02 (37)	0.03 $\pm$ 0.03 (33)	0.09 $\pm$ 0.11 (40)	0.02 $\pm$ 0.04 (6)	0.03 $\pm$ 0.02 (11)	0.05 $\pm$ <0.01 (2)	0
	GRI	0.91 $\pm$ 0.07 (42)	0.02 $\pm$ 0.02 (18)	0.05 $\pm$ 0.04 (36)	0.03 $\pm$ 0.04 (14)	0.01 (2)	0	0	0
Middle Reach	MRU	0.28 $\pm$ 0.22 (55)	0.24 $\pm$ 0.18 (78)	0.45 $\pm$ 0.16 (81)	0.19 $\pm$ 0.17 (51)	0.02 (1)	0.02 $\pm$ 0.01 (8)	0.1 (1)	0.01 (2)
	MRI	0.3 $\pm$ 0.22 (51)	0.08 $\pm$ 0.04 (49)	0.57 $\pm$ 0.19 (51)	0.04 $\pm$ 0.03 (30)	0.01 (1)	0.01 $\pm$ <0.01 (3)	0	0
	MF	0.24 $\pm$ 0.22 (45)	0.23 $\pm$ 0.16 (48)	0.17 $\pm$ 0.12 (46)	0.36 $\pm$ 0.15 (49)	0	0.02 $\pm$ 0.03 (13)	0.01 $\pm$ <0.01 (3)	0.02 $\pm$ 0.01 (3)
	MPI	0.2 $\pm$ 0.21 (37)	0.25 $\pm$ 0.15 (36)	0.18 $\pm$ 0.1 (36)	0.31 $\pm$ 0.18 (36)	0	0.03 $\pm$ 0.03 (21)	0	0
Upper Reach	URU	0.14 $\pm$ 0.1 (36)	0.41 $\pm$ 0.21 (95)	0.19 $\pm$ 0.1 (83)	0.28 $\pm$ 0.17 (71)	0	0.05 (1)	0.03 $\pm$ 0.01 (5)	0.25 (1)
	UP	0.09 (1)	0.4 $\pm$ 0.2 (19)	0.11 $\pm$ 0.08 (11)	0.4 $\pm$ 0.22 (19)	0	0.15 $\pm$ 0.18 (3)	0.04 $\pm$ <0.01 (3)	0

¹ Chub spp includes those not identifiable as lake or creek chub

Table 3 (con't): Mean proportion of species representation, $\pm$ SD, by habitat type and reach in Catamaran Brook (seasons combined), 1990-2002. Bracketed values indicate number of fish used in calculation.

Reach	Habitat Type	American eel	Three spine stickleback	Golden shiner	Northern redbelly dace	Lamprey (adult)	Lamprey (larvae)	Common shiner	Finescale dace
Lower Reach	LBRU	0.01 $\pm$ 0.01 (2)	0.01 $\pm$ 0.01 (4)	0	0	0.01 $\pm$ 0.01 (4)	0.01 $\pm$ 0.01 (7)	0.01 $\pm$ 0.01 (2)	0
	LRU	0	0	0	0	0.01 $\pm$ 0.01 (6)	0.04 $\pm$ 0.08 (20)	0	0
	LRI	0.01 (1)	0.01 $\pm$ 0.01 (2)	0	0	0	0	0	0.03 (1)
	LF	0.01 (1)	0.01 $\pm$ 0.01 (4)	0	0	0.01 $\pm$ 0.02 (9)	0.02 $\pm$ 0.04 (27)	0.01 $\pm$ 0.01 (4)	0
	LPI	0.01 (1)	0.02 $\pm$ 0.02 (3)	0	0	0.01 $\pm$ 0.01 (2)	0.02 $\pm$ 0.01 (6)	0.01 (1)	0
Gorge Reach	GBRU	0.01 $\pm$ 0.01 (5)	0	0	0.01 $\pm$ 0.01 (9)	0.01 $\pm$ 0.01 (4)	0.01 $\pm$ 0.01 (13)	0.01 (1)	0.01 (1)
	GRU	0.01 $\pm$ 0.01 (3)	0	0	0	0.01 $\pm$ 0.01 (3)	0.02 $\pm$ 0.02 (17)	0	0
	GRI	0	0	0	0	0	0	0	0
Middle Reach	MRU	0.03 $\pm$ 0.02 (5)	0	0	0	0	0	0.03 $\pm$ 0.01 (2)	0.06 (1)
	MRI	0	0.01 (1)	0	0	0	0	0	0
	MF	0	0	0	0.01 (1)	0	0	0	0
	MPI	0.01 $\pm$ 0.01 (2)	0	0	0	0	0	0	0
	URU	0.04 (1)	0	0	0.04 $\pm$ 0.03 (4)	0	0	0.05 $\pm$ 0.01 (1)	0.05 $\pm$ 0.01 (2)
Upper Reach	UP	0	0	0.08 (1)	0.25 (1)	0	0	0	0

Table 4. Mean density (#/100m³) of all fish collected during summer sampling in the four reaches of Catamaran Brook. Bracketed values are estimated mean $\pm$ SE. ns = not sampled.

	Lower Reach				Gorge Reach			
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU
1990	120.94 (62.51 - 244.72)	52.45 (38.31 - 72.19)	ns	85.59 (69.5 - 106.92)	103.21 (36.16 - 254.54)	114.55 (86.28 - 144.46)	142.13 (82.57 - 215.86)	135.92 (83.52 - 231.43)
1991	108.16 (81.14 - 136.36)	140.27 (125.34 - 151.51)	ns	174.79 (156.25 - 195.32)	365.28 (341.96 - 386.77)	166.66 (94.22 - 242.29)	294.57 (204.09 - 393.85)	188.31 (170.84 - 219.08)
1992	122.79 (112.45 - 134.57)	140.81 (98.02 - 181.98)	ns	140.07 (114.51 - 168)	198.43 (166.06 - 225.53)	127.7 (115.73 - 138.58)	180.75 (126.63 - 237.95)	186.05 (174.93 - 201.5)
1993	102.13 (51.63 - 154.61)	126.01 (90.97 - 170.61)	61.33 (58.03 - 64.62)	91.89 (85.47 - 98.06)	182.69 (121.08 - 244.26)	154.46 (141.51 - 171.59)	148.92 (132.77 - 166.33)	156.5 (138.66 - 176.34)
1994	74.46 (32.54 - 124.97)	280.53 (252.51 - 310.12)	163.75 (130.37 - 197.12)	247.45 (185.19 - 309.3)	323.11 (247.45 - 395.27)	153.53 (148.8 - 158.91)	315.56 (156.46 - 486.64)	211.76 (190.09 - 228.95)
1995	147.91 (79.49 - 212.98)	77.01 (60.03 - 89.88)	126.73 (123.57 - 129.9)	109.3 (82.87 - 135.14)	208.65 (187.44 - 227.9)	49.84 (36.12 - 65.67)	63.29 (52.98 - 73.64)	67.49 (57.49 - 77.34)
1996	91.31 (46.39 - 138.78)	55.94 (45.68 - 66.73)	78.15 (76.35 - 79.94)	66.7 (34.61 - 98.73)	84.44 (74.11 - 98.01)	96.36 (62.63 - 129.15)	76.12 (54.68 - 97.13)	104.66 (92.41 - 117.61)
1997	62.87 (53.82 - 71)	58.88 (54.78 - 62.93)	ns	36.09 (34.06 - 39.14)	80.13 (75.72 - 84.45)	154.2 (142.81 - 166.02)	166.31 (130.46 - 202.89)	233.95 (229.24 - 239.03)
1998	74.92 (41.71 - 107.8)	51.55 (43.55 - 63.94)	ns	55.09 (43.77 - 65.65)	104.84 (73.17 - 136.55)	77.83 (70.71 - 85.84)	108 (93.91 - 121.25)	80.98 (64.2 - 95.06)
1999	67.52 (42.43 - 93.51)	62.84 (26.87 - 100.64)	113.44 (49.13 - 185.91)	123.67 (98.44 - 148.86)	104.63 (96.74 - 116.34)	250.56 (229.87 - 278.21)	314.71 (261.73 - 367.51)	310.17 (304.98 - 315.36)
2000	164.15 (97.92 - 232.37)	125.03 (96.58 - 159.55)	193.72 (108.9 - 305.31)	109.93 (91.68 - 128.08)	205.61 (167.67 - 260.14)	150.59 (128.24 - 175.14)	129.57 (123.27 - 133.94)	206.01 (197.49 - 220.23)
2001	50.43 (39.78 - 65.83)	37.7 (18.85 - 59.59)	ns	55.46 (46.92 - 61.73)	109.05 (88.3 - 138.72)	99.06 (61.54 - 137.77)	52.35 (51.2 - 53.88)	63.64 (61.42 - 65.86)
2002	43.25 (41.65 - 44.85)	57.26 (54.68 - 59.85)	ns	84.72 (31.72 - 139.51)	96.61 (42.96 - 149.72)	41.22 (35.73 - 48.17)	107.76 (106.29 - 109.51)	74.9 (54.15 - 89.04)

Table 4 (cont): Mean density (#/100m²) of all fish collected during summer sampling in the four reaches of Catamaran Brook. Bracketed values are estimated mean $\pm$ SE. ns = not sampled.

	Middle Reach			Upper Reach		
	MF	MP	MRI	MRU	UP	URU
1990	57.36 (35.06 - 83.98)	ns	87.07 (64.68 - 123.85)	108.31 (88.4 - 121.23)	ns	53.56 (19.71 - 83.49)
1991	95.75 (66.34 - 166.28)	ns	202.42 (160.01 - 251.17)	291.85 (174.21 - 370.9)	ns	71.66 (37.34 - 110.27)
1992	59.54 (51.99 - 67.09)	ns	117.55 (109.06 - 125.5)	114.84 (90.07 - 134.92)	ns	44.18 (15.38 - 94.49)
1993	51.68 (17.51 - 76.53)	89.27 (68.17 - 104.39)	114.48 (81.55 - 148.26)	151.62 (144.87 - 157.48)	ns	50.03 (35.08 - 84.98)
1994	47.3 (25.33 - 71.85)	91.34 (72 - 115.63)	121.28 (108.82 - 136.09)	84.65 (65.26 - 106.34)	33.37 (25.38 - 42.66)	37.16 (16.84 - 58.15)
1995	71.52 (50.29 - 84.05)	161.86 (139.92 - 174.78)	134.51 (122.24 - 146.05)	153.27 (124.86 - 190.79)	36.58 (13.15 - 60.2)	70.8 (31.77 - 117.06)
1996	43.58 (17.23 - 63.21)	117.48 (96.85 - 139.59)	68.02 (50.4 - 84.83)	55.28 (32.86 - 92.03)	34.89 (15.45 - 59.25)	21.06 (10.91 - 27.65)
1997	28.25 (9.93 - 49.86)	60.66 (49.58 - 67)	61.54 (54.74 - 69.09)	93.35 (60.25 - 118.62)	53.62 (51.06 - 57.24)	35.03 (20.39 - 53.96)
1998	58.4 (11.44 - 136.85)	113.49 (61.21 - 165.21)	117.21 (105.2 - 129.26)	91.62 (41.44 - 161.2)	46.72 (41.82 - 52.89)	43.94 (33.33 - 54.47)
1999	147.48 (113.81 - 184.17)	168.06 (155.1 - 183.76)	178.79 (142.64 - 204.79)	193.24 (93.38 - 298.14)	60.34 (60.32 - 60.61)	88.08 (59.94 - 139)
2000	66.65 (40.08 - 92.07)	67.84 (63.95 - 71.73)	131.68 (86.77 - 178.44)	85.42 (73.76 - 96.4)	91.89 (91.39 - 93.44)	73.44 (26.36 - 124.93)
2001	35.08 (21.67 - 49.4)	101.92 (39.1 - 187.57)	99.24 (70.68 - 141.31)	91.35 (43.49 - 151.09)	66.31 (62.88 - 70.97)	62.6 (21.97 - 108.5)
2002	42.33 (25.63 - 67.97)	142.94 (106.71 - 183.54)	111.75 (84.29 - 143.82)	135.34 (86.27 - 179.03)	ns	113.24 (36.26 - 171.87)

Table 5: Mean density (#/100m²) of all fish collected during autumn sampling in the four reaches of Catamaran Brook. Bracketed values are estimated mean $\pm$ SE. ns = not sampled.

	Lower Reach			Gorge Reach		
	LBRU	LF	LP	LRI	LRU	
					GBRU	GRI
						GRU
1990	55.53 (34.55 - 96.35)	101.14 (79.13 - 135.17)	ns	38.76 (32.03 - 47.07)	80.59 (50.9 - 121.64)	ns
1991	72.82 (44.84 - 101.64)	110.95 (64.8 - 156.1)	ns	67.75 (63.64 - 71.98)	134.99 (94.97 - 172.89)	ns
1992	123.29 (121.51 - 125.07)	117.07 (116.44 - 117.7)	ns	67.63 (66.41 - 69.07)	159.53 (155.29 - 163.77)	ns
1993	87.39 (87.04 - 88.09)	55.18 (50.79 - 59.82)	ns	56.61 (51.79 - 61.25)	84.68 (80.74 - 90.28)	60.99 (53.49 - 67.65)
1994	171.9 (144.19 - 199.17)	171.19 (159.31 - 181.89)	236.68 (224.95 - 248.41)	149.19 (124.3 - 174.48)	196.78 (170.6 - 221.64)	96.48 (78.4 - 116.58)
1995	ns	ns	ns	39.99 (39.86 - 40.36)	65 (63.68 - 66.33)	36.84 (31.5 - 42.72)
1996	74.39 (36.83 - 111.85)	39.75 (37.73 - 41.77)	ns	34.67 (20.25 - 49.31)	51.31 (45.2 - 59.52)	86.17 (68.36 - 105.37)
1997	144.03 (122.38 - 168.47)	76.3 (73.48 - 79.12)	224.91 (217.53 - 232.28)	37.57 (33.51 - 42.38)	110.1 (88.34 - 135.69)	126.18 (142.86 - 161.17)
1998	56.38 (39.13 - 75.68)	41.45 (32.84 - 51.54)	ns	38.32 (25.53 - 51.18)	78.57 (70.04 - 90.5)	81.86 (78.83 - 85.54)
1999	128.37 (113.18 - 145.8)	118.24 (115.67 - 120.8)	173.49 (142.28 - 204.7)	59.61 (58.28 - 62.23)	109.67 (95 - 128.78)	50.22 (26.35 - 74.87)
2000	98.59 (83.43 - 116.03)	74.99 (42.95 - 113.05)	ns	146.28 (58.34 - 236.34)	171.66 (116.35 - 243.05)	101.23 (101.02 - 101.78)
2001	71.91 (56.47 - 91.14)	39.16 (29.81 - 48.14)	67.03 (62.37 - 71.69)	58.13 (54.69 - 60.89)	140.92 (132.98 - 150.83)	55.86 (54.46 - 57.02)
2002	81.26 (40.76 - 113.81)	33.82 (26.51 - 40.48)	ns	30.76 (6.87 - 54.54)	107.74 (42 - 177.55)	44.44 (42.6 - 46.71)
						68.86 (53.33 - 84.88)

Table 5 (con't): Mean density (#/100m²) of all fish collected during autumn sampling in the four reaches of Catamaran Brook. Bracketed values are estimated mean +/- SE. ns = not sampled.

	Middle Reach				Upper Reach	
	MF	MP	MRI	MRU	UP	URU
1990	74.48 (46.69 - 88.66)	ns	64.25 (43.51 - 87.81)	57.37 (38.01 - 103.96)	ns	22.62 (13.87 - 36.26)
1991	105.73 (70.52 - 134.18)	ns	85.53 (76.15 - 94.35)	120.66 (92.56 - 153.4)	ns	44.39 (11.34 - 106.78)
1992	91.32 (85.42 - 97.03)	117.73 (101.55 - 138.37)	77.21 (67.35 - 85.58)	121.1 (86.96 - 157.81)	ns	78.05 (53.92 - 102.93)
1993	85.11 (52.01 - 119.64)	106.21 (92.14 - 120.83)	84.47 (66.91 - 103.24)	89.62 (68.11 - 113.07)	ns	55.9 (31.77 - 83.34)
1994	83.82 (77.14 - 89.63)	117.65 (99.8 - 135.32)	133.39 (91.62 - 178.12)	133.49 (86.21 - 181.06)	69.75 (49.18 - 94.47)	62.74 (41.29 - 95.97)
1995	73 (64.13 - 80.55)	114.45 (90.5 - 135.92)	76.81 (69.94 - 83.6)	116.2 (94.56 - 138.89)	63.41 (41.2 - 82.12)	45.52 (20.19 - 84.99)
1996	74.58 (69.19 - 79.97)	57.41 (47.11 - 67.7)	40.08 (33.37 - 44.94)	57.36 (31.48 - 80.75)	ns	53.27 (48.35 - 58.69)
1997	65.73 (48.69 - 88.76)	103.59 (90.35 - 128.6)	89.7 (65.95 - 125.72)	90.82 (58.75 - 134.28)	ns	ns
1998	85.52 (81.16 - 89.87)	ns	100.81 (64.88 - 135.47)	123.81 (55.86 - 224.57)	143.26 (28.85 - 274.51)	48.77 (31.91 - 89.26)
1999	97.48 (57.73 - 139)	89.66 (83.48 - 95.83)	117.56 (89.85 - 149.05)	129.21 (88.28 - 212.21)	ns	47.74 (30.01 - 68.51)
2000	82.68 (42.5 - 123.28)	ns	87.97 (70.1 - 126.41)	118.56 (60.75 - 180.5)	57.57 (48.87 - 68.1)	47.89 (17.99 - 83.57)
2001	46.24 (39.41 - 49.52)	102.4 (86.66 - 113.1)	77.54 (68.09 - 86.76)	105.63 (59 - 188.66)	ns	33.64 (12.99 - 53.96)
2002	64.38 (55.5 - 73.27)	122.94 (111.88 - 134)	75.6 (62.06 - 88.54)	109.23 (25.06 - 172.69)	ns	ns

Table 6: Mean density (#/100m²) of juvenile Atlantic salmon (all age classes combined) during summer sampling in the four reaches of Catamaran Brook. Bracketed values are estimated mean $\pm$ SE. ns = not sampled.

	Lower Reach				Gorge Reach			
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU
1990	40.5 (14.32 - 72.67)	44.74 (28.01 - 67.79)	ns	74.26 (51.87 - 106.92)	35.76 (15.68 - 59.34)	92.8 (77.62 - 107.19)	80.87 (75.7 - 86.05)	110.76 (66.62 - 188.39)
1991	70.03 (66.01 - 74.06)	116.16 (97.76 - 129.63)	ns	162.77 (151.99 - 175.67)	309.69 (264.81 - 354.59)	136.88 (39.26 - 238.74)	288.81 (201.04 - 386.84)	175.39 (150.34 - 213.74)
1992	104.34 (99.83 - 107.96)	111.26 (76.42 - 142.95)	ns	133.79 (107.02 - 163.31)	161.7 (121.01 - 200.22)	114.08 (91.96 - 136.3)	178.16 (123.72 - 236.18)	177.16 (161.83 - 197.58)
1993	77.82 (43.27 - 114.63)	107.12 (77.01 - 146.84)	27.28 (25.05 - 29.67)	81.86 (78.63 - 85.02)	157.79 (97.8 - 217.28)	136.21 (118.02 - 162.28)	147.47 (132.77 - 163.44)	146.74 (132.2 - 163.35)
1994	43.06 (19.52 - 75.51)	263.26 (240.04 - 298.65)	129.71 (95.53 - 163.88)	229.39 (161.38 - 297.67)	304.14 (231.13 - 374.22)	136.43 (115.62 - 158.21)	305.18 (142.79 - 480.08)	203.27 (184.7 - 217.37)
1995	87.14 (40.93 - 133.23)	63.24 (13.07 - 109.12)	30.96 (29.24 - 32.8)	203.58 (73.31 - 332.64)	165.57 (41.29 - 292.43)	25.58 (16.17 - 35.6)	56 (48.74 - 63.38)	69.34 (63.5 - 74.72)
1996	30.6 (19 - 42.56)	15.58 (10.15 - 22.68)	5.99 (5.5 - 7.16)	53.46 (28.23 - 78.62)	28.54 (9 - 49.71)	52.36 (50.12 - 54.72)	66.53 (46.67 - 86.77)	90.46 (68.39 - 112.86)
1997	16.69 (13.37 - 19.54)	27.14 (24.07 - 30.45)	ns	26.66 (26.41 - 27.3)	37.28 (29.11 - 44.22)	137.49 (113.81 - 161.65)	157.63 (116.85 - 199.53)	220.1 (214.51 - 226.32)
1998	20.15 (8.37 - 31.89)	32.77 (24.32 - 44.55)	ns	44.95 (34.37 - 55.59)	54.13 (48.65 - 58.18)	67.34 (53.57 - 82.95)	102.53 (87.95 - 116.32)	75.81 (56.44 - 92.79)
1999	27.29 (11.16 - 44.23)	17.8 (14.22 - 21.76)	33.13 (20.74 - 47.51)	80.91 (75.28 - 86.34)	50.79 (46.27 - 57.97)	188.96 (161.92 - 211.57)	297.38 (252.06 - 342.27)	290.36 (285.56 - 295.16)
2000	76.01 (25.6 - 126.91)	62.87 (53.23 - 80.39)	43.71 (39.11 - 53.25)	91.6 (76.98 - 106.45)	94.23 (58.95 - 127.36)	101.6 (75.29 - 125.65)	122.06 (111.89 - 130.32)	189.07 (181.14 - 201.95)
2001	13.02 (5.33 - 23.01)	11.45 (4.16 - 19.17)	ns	37.17 (25.87 - 48.01)	34.43 (25.19 - 42.55)	52.38 (40.85 - 70.64)	50.32 (49.68 - 51.47)	51.8 (50.08 - 53.51)
2002	9.43 (9.33-9.53)	1.52 (1.22 - 2.67)	ns	69.67 (15.45 - 125.32)	10.23 (6.18 - 14.11)	25.72 (20.05 - 31.15)	85.09 (84.75 - 85.86)	42.32 (28.21 - 56.6)

Table 6 (con't): Mean density (#/100m²) of juvenile Atlantic salmon (all age classes combined) during summer sampling in the four reaches of Catamaran Brook. Bracketed values are estimated mean +/- SE. ns = not sampled.

	Middle Reach				Upper Reach	
	MF	MP	MRI	MRU	UP	URU
1990	26.17 (11.16 - 44.29)	ns	42.82 (32.75 - 61.24)	40.22 (37.52 - 45.04)	ns	5.91 (4.38 - 9.08)
1991	25.03 (17.51 - 35.86)	ns	135.94 (113.17 - 163.46)	131.62 (77.64 - 194.08)	ns	6.14 (2.88 - 10.18)
1992	38.64 (34.08 - 43.2)	ns	72.71 (70.89 - 74.7)	73.39 (62.26 - 81.49)	ns	4.18 (2.19 - 10.71)
1993	27.15 (5.25 - 51)	59.55 (41.43 - 69.85)	62.38 (40.66 - 85.02)	88.39 (76.6 - 102.23)	ns	8.1 (3.96 - 14.91)
1994	12.46 (1.74 - 26.16)	21.16 (17.67 - 28.68)	48.17 (41.42 - 58.83)	29.15 (3.43 - 51.52)	0	2.14 (1.6 - 2.8)
1995	6.29 (2.77 - 9.81)	25.83 (19.36 - 31.91)	17.8 (16.35 - 21.41)	25.89 (22.55 - 30.26)	0	0
1996	2.42 (2.42 - 2.43)	2.89 (1.96 - 4.03)	5.74 (2.99 - 8.83)	7.71 (2.53 - 21.99)	3.62 (3.62 - 3.62)	1.53 (1.53 - 1.53)
1997	0.84 (0.76 - 0.93)	1.88 (1.57 - 2.92)	2.58 (1.71 - 4.73)	6.29 (5.27 - 8.12)	0	0
1998	8.93 (2.45 - 15.4)	9.62 (6.38 - 13.4)	19.92 (13.22 - 30.11)	14.48 (1.24 - 23.21)	0	1.51 (1.51 - 1.51)
1999	4.15 (3.4 - 5.26)	11.98 (5.72 - 21.74)	19.9 (13.09 - 32.25)	22.1 (5.11 - 74.69)	0	1.81 (1.81 - 1.81)
2000	14.8 (9.91 - 25.03)	8.42 (2.48 - 15.39)	28.59 (17.58 - 61.84)	15.18 (12.53 - 20.11)	0	0
2001	4.43 (2.82 - 6.24)	13.49 (3.55 - 41.34)	13.45 (12.41 - 14.38)	21.98 (17.57 - 27.54)	0	0
2002	5.97 (4 - 11.82)	19.3 (9.53 - 28.7)	17.9 (15.87 - 20)	26.61 (20.22 - 33.75)	0	0

Table 7: Mean density (#/100m²) of juvenile Atlantic salmon (all age classes combined) during autumn sampling in the four reaches of Catamaran Brook. Bracketed values are estimated mean +/- SE. ns = not sampled.

	Lower Reach				Gorge Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRI
1990	44.78 (34.55 - 62.86)	72.17 (52.52 - 95.29)	ns	37.37 (31.19 - 45.54)	68.46 (40.11 - 112.11)	ns	ns
1991	57.27 (39.71 - 74.68)	95.34 (56.87 - 133.1)	ns	61.59 (55.83 - 68.02)	119.68 (81.8 - 157.08)	ns	ns
1992	108.37 (107.32 - 109.66)	92.68 (92.44 - 93.06)	ns	61.67 (60.96 - 62.71)	142.92 (140.02 - 145.83)	ns	ns
1993	72.14 (71.95 - 72.65)	43.93 (39.96 - 48.21)	ns	53.57 (50.95 - 56.12)	72.76 (70.05 - 75.56)	ns	54.39 (46.29 - 62.12)
1994	126.35 (97.79 - 152.22)	122.28 (111.29 - 134)	175.98 (168.08 - 183.87)	141.12 (115.09 - 167.55)	176.67 (141.44 - 211.2)	108.23 (88.4 - 129.13)	93.18 (76.8 - 111.17)
1995	ns	ns	ns	31.4 (31.2 - 31.88)	23.41 (23.37 - 23.57)	45.13 (32.36 - 55.72)	25.94 (20.25 - 32)
1996	26.4 (20.12 - 33.42)	20.87 (20.29 - 21.61)	ns	29.98 (16.3 - 43.83)	30.12 (21.34 - 39.38)	58.99 (54.85 - 64.33)	51.13 (46.1 - 56.84)
1997	32.97 (27.14 - 38.71)	25 (23.28 - 26.72)	42.36 (42.26 - 42.72)	27.09 (26.4 - 28.09)	29.08 (24.12 - 36.46)	128.15 (111.57 - 143.44)	118.79 (91.35 - 147.02)
1998	25.17 (16.19 - 34.54)	20.66 (15.24 - 27.26)	ns	30.26 (20.21 - 40.57)	38.5 (37.13 - 39.42)	73.66 (66.23 - 82.52)	47.12 (45.74 - 48.73)
1999	27.94 (10.1 - 38.66)	23.65 (19.78 - 28.17)	21.33 (21.33 - 21.33)	41.4 (40.77 - 42.75)	40.61 (37.5 - 44.85)	52.33 (25.31 - 79.67)	45.05 (21.08 - 69.46)
2000	44.56 (29.22 - 60.55)	28.45 (22.16 - 36.62)	ns	117.02 (50.1 - 185.38)	74.16 (58.3 - 90.45)	81.9 (56.63 - 111.97)	97.16 (97.04 - 97.6)
2001	22.03 (13.81 - 31.18)	15.23 (11.81 - 18.64)	20.67 (20.16 - 21.51)	39.01 (34.33 - 44.77)	54.96 (41.37 - 67.66)	35.23 (32.91 - 36.65)	50.6 (50.27 - 51.38)
2002	20.3 (7.48 - 34.06)	5.79 (5.29 - 6.63)	ns	25.21 (2.11 - 48.45)	20.87 (19 - 22.43)	20.15 (20.07 - 20.5)	37.8 (37.27 - 38.81)

Table 7 (cont): Mean density (#/100m²) of juvenile Atlantic salmon (all age classes combined) during autumn sampling in the four reaches of Catamaran Brook. Bracketed values are estimated mean +/- SE. ns = not sampled.

	Middle Reach			Upper Reach	
	MF	MP	MRI	UP	URU
1990	18.99 (5.69 - 33.35)	ns	36.67 (25.92 - 52.02)	ns	4.96 (1.44 - 9.26)
1991	66.28 (31.59 - 99.19)	ns	60.91 (51.2 - 70.27)	ns	4.5 (3.26 - 5.97)
1992	57.48 (46.82 - 68.6)	86.82 (68.53 - 108.61)	45.41 (35.89 - 55.18)	ns	10.76 (4.57 - 17.24)
1993	40.82 (26.42 - 55.53)	61.75 (52.67 - 73.75)	49.01 (45.55 - 52.38)	ns	3.24 (1.4 - 7.99)
1994	26.17 (17.66 - 34.95)	31.36 (29.75 - 33.18)	45.63 (32.27 - 58.97)	0	4.64 (1.42 - 8.17)
1995	7.5 (4.09 - 10.89)	10.08 (7.18 - 13.44)	13.69 (12.81 - 16.07)	0	0
1996	2.3 (2.3 - 2.34)	0.8 (0.8 - 0.81)	5.39 (3.68 - 10.88)	ns	0
1997	1.93 (1.93 - 1.94)	6.25 (4.05 - 11.96)	4.43 (3.75 - 5.22)	ns	ns
1998	6.74 (6.64 - 7.1)	18.69 (18.65 - 18.9)	14.46 (13.31 - 16.03)	0	1.67 (1.67 - 1.68)
1999	2.84 (2.43 - 3.47)	21.42 (13.07 - 35.64)	15.11 (13.47 - 17.04)	ns	0
2000	3.71 (1.83 - 5.59)	ns	17.53 (16.83 - 18.34)	0	0
2001	6.9 (1.98 - 15.78)	14.62 (13.73 - 16.86)	16.24 (12.86 - 18.75)	ns	0
2002	3.14 (3.14 - 3.15)	12.57 (11.55 - 14.13)	10.65 (7.04 - 16.63)	ns	ns

Table 8: Estimates of density (#/100m²) of age 0+ salmon during summer sampling of Catamaran Brook. Values derived by multiplying mean density for all salmon combined by proportion of total salmon in age class. ns = not sampled.

	Lower Reach					Gorge Reach			Middle Reach				Upper Reach	
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	25.69	34.05	ns	50.37	15.76	79.85	60.78	89.99	1.54	ns	0	0	ns	0
1991	44.51	102.25	ns	112.88	250.80	120.09	231.25	152.35	18.36	ns	108.91	114.87	ns	0
1992	73.36	98.19	ns	74.33	128.17	90.01	117.93	161.38	28.99	ns	28.28	54.77	ns	0
1993	51.45	95.81	20.92	39.98	125.85	107.94	97.29	127.15	16.12	48.43	31.93	56.53	ns	0
1994	26.44	250.71	112.25	182.55	275.16	114.79	198.67	183.11	7.27	5.60	18.82	11.29	0	0
1995	47.47	56.83	0	161.56	117.31	3.20	4.12	27.65	0	0	0	0	0	0
1996	20.60	13.27	1.00	40.66	22.06	50.07	52.20	79.85	0.81	0.48	1.05	1.40	0	0
1997	2.23	17.00	ns	9.57	20.18	123.58	109.94	198.45	0	0	0	0	0	0
1998	10.35	23.67	ns	24.32	33.12	41.38	52.33	54.21	0	0	0	0	0	0
1999	15.22	11.73	16.06	52.55	30.40	153.84	216.69	260.58	2.37	4.36	9.19	8.29	0	0
2000	62.86	58.17	31.14	66.78	83.36	92.12	91.22	178.25	0	0	1.06	0	0	0
2001	0.50	3.90	ns	9.64	0	19.98	11.56	29.11	0	0	0	0	0	0
2002	0	1.15	ns	54.77	0	13.54	14.42	23.09	0	0	0	0	0	0

Table 9: Estimates of density (#/100m²) of age 0+ salmon during autumn sampling of Catamaran Brook. Values derived by multiplying mean density for all salmon combined by proportion of total salmon in age class. ns = not sampled.

	Lower Reach					Gorge Reach			Middle Reach				Upper Reach	
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	34.09	64.82	ns	27.89	55.40	ns	ns	ns	1.98	ns	2.62	1.38	ns	0
1991	34.71	82.13	ns	36.76	86.25	ns	ns	ns	56.40	ns	55.04	68.95	ns	3.22
1992	75.86	75.41	ns	25.33	94.10	ns	ns	ns	36.81	51.55	25.23	47.66	ns	0
1993	51.20	37.12	ns	33.25	50.76	ns	ns	40.80	29.22	42.54	30.38	34.75	ns	0
1994	98.20	110.41	154.24	109.01	149.10	84.89	61.31	99.82	14.06	10.45	23.20	23.33	0	0
1995	ns	ns	ns	10.47	3.66	5.58	3.38	11.66	0	0	0	0	0	0
1996	18.79	17.13	ns	25.17	17.89	51.67	44.55	59.92	0	0	1.35	1.60	ns	0
1997	12.37	11.63	15.13	13.08	14.33	106.63	90.46	122.39	0	0	0	0	ns	ns
1998	17.10	15.50	ns	16.89	25.04	53.02	28.09	52.48	0	0	0	0	0	0
1999	17.85	17.45	11.18	28.88	25.48	43.78	30.82	23.92	1.90	13.77	11.49	8.61	ns	0
2000	35.54	24.83	ns	96.81	57.68	69.62	74.50	73.80	0.53	ns	4.09	8.61	0	0
2001	3.59	6.22	4.77	11.09	22.84	19.41	14.14	33.31	0.58	0.52	1.95	2.89	ns	0
2002	12.54	1.16	ns	19.45	3.56	9.41	13.19	15.52	0	0	0.82	0.77	ns	ns

Table 10: Estimates of density (#/100m²) of age 1+ salmon during summer sampling of Catamaran Brook. Values derived by multiplying mean density for all salmon combined by proportion of total salmon in age class. ns = not sampled.

	Lower Reach					Gorge Reach			Middle Reach			Upper Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	9.88	10.05	ns	21.96	16.37	9.85	15.31	14.71	24.63	ns	39.77	37.18	ns	4.23
1991	18.33	12.87	ns	39.91	40.88	12.21	35.13	13.38	2.50	ns	15.02	7.18	ns	0.68
1992	20.87	11.86	ns	44.10	28.04	20.13	41.85	12.22	8.78	ns	42.71	17.50	ns	2.09
1993	19.29	9.65	4.55	31.89	23.60	20.74	29.98	17.69	6.36	7.20	22.28	22.10	ns	1.54
1994	15.11	8.51	9.98	28.49	20.43	17.78	64.63	14.33	3.64	11.83	23.33	14.58	0	0
1995	33.30	5.73	22.36	34.85	39.55	21.01	38.71	39.14	4.04	13.56	11.05	17.98	0	0
1996	5.30	0.66	0	7.91	3.89	1.91	6.14	3.91	0	0	1.05	2.81	0	0
1997	12.80	9.54	ns	16.41	15.79	13.19	43.63	21.13	0.85	0.94	2.58	5.59	0	0
1998	8.17	7.59	ns	14.37	13.89	22.20	39.64	17.28	8.08	7.09	17.27	11.31	0	0
1999	8.92	3.24	12.05	23.44	15.57	24.24	56.04	23.82	0	1.09	1.53	4.15	0	0
2000	10.23	4.34	8.98	20.63	8.80	7.45	23.63	8.57	14.80	7.43	26.48	13.62	0	0
2001	10.52	7.03	ns	21.81	0	29.71	30.60	21.17	2.77	8.30	8.97	15.71	0	0
2002	3.11	0	ns	9.07	4.31	7.67	38.94	15.87	2.99	12.15	10.53	14.97	0	0

Table 11: Estimates of density (#/100m²) of age 1+ salmon during autumn sampling of Catamaran Brook. Values derived by multiplying mean density for all salmon combined by proportion of total salmon in age class. ns = not sampled.

	Lower Reach				Gorge Reach			Middle Reach			Upper Reach			
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	7.35	6.90	ns	8.92	9.93	ns	ns	ns	14.24	ns	28.81	23.49	ns	4.96
1991	17.36	11.81	ns	21.36	22.44	ns	ns	ns	6.59	ns	3.21	7.35	ns	0.64
1992	20.47	14.66	ns	20.93	32.16	ns	ns	ns	20.68	32.56	20.19	27.63	ns	8.46
1993	13.96	4.09	ns	17.55	13.54	ns	ns	11.84	9.03	13.04	10.36	12.32	ns	1.39
1994	19.23	8.04	10.35	23.52	12.25	19.53	22.68	20.39	11.63	17.42	18.56	24.94	0	0
1995	ns	ns	ns	15.70	8.78	27.89	20.30	17.83	4.17	3.92	9.53	15.23	0	0
1996	2.03	0	ns	1.98	4.71	3.86	3.54	3.23	1.54	0	2.02	1.60	ns	0
1997	17.86	12.21	20.18	12.61	11.80	20.52	25.33	19.76	0.97	3.13	3.33	3.53	ns	ns
1998	5.70	4.26	ns	10.56	8.62	17.81	16.31	16.28	5.78	14.02	11.13	13.29	0	1.68
1999	5.43	5.43	4.06	10.09	8.76	6.54	10.08	8.30	0.47	3.06	0	3.45	ns	0
2000	4.51	2.59	ns	10.11	9.21	9.36	15.39	9.23	3.18	ns	11.69	11.48	0	0
2001	12.81	8.08	13.52	20.40	24.99	13.79	30.51	20.08	5.76	10.97	11.70	13.71	ns	0
2002	2.39	3.47	ns	2.40	10.18	6.72	14.07	12.17	3.15	8.98	9.01	18.59	ns	ns

Table 12: Estimates of density (#/100m³) of age 2+ salmon during summer sampling of Catamaran Brook. Values derived by multiplying mean density for all salmon combined by proportion of total salmon in age class. ns = not sampled.

	Lower Reach				Gorge Reach			Middle Reach			Upper Reach			
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	4.94	0.65	ns	1.94	3.64	3.11	4.79	6.06	0.00	ns	3.06	3.04	ns	1.69
1991	7.20	1.04	ns	9.98	18.01	4.58	22.44	9.66	4.17	ns	12.02	9.57	ns	5.46
1992	10.12	1.22	ns	15.36	5.51	3.95	18.39	3.56	0.88	ns	1.73	1.13	ns	2.09
1993	7.07	1.66	1.82	10.00	8.36	7.54	20.19	1.91	4.67	3.93	8.17	9.76	ns	6.56
1994	1.51	4.05	7.48	18.35	8.55	3.86	41.89	5.84	1.56	3.74	6.02	3.29	0	2.14
1995	6.38	0.69	8.60	7.17	8.71	1.37	13.18	2.55	2.25	12.27	6.75	7.91	0	0
1996	4.71	1.66	4.99	4.89	2.60	0.38	8.19	6.70	1.62	2.41	3.66	3.51	3.62	1.53
1997	1.67	0.60	ns	0.68	1.32	0.73	4.07	0.52	0	0.94	0	0.70	0	0
1998	1.63	1.52	ns	6.26	7.12	3.76	10.57	4.32	0.85	2.53	2.66	3.18	0	1.52
1999	3.15	2.83	5.02	4.92	4.82	10.88	24.66	5.96	1.78	6.54	9.19	9.67	0	1.82
2000	2.92	0.36	3.59	4.20	2.07	2.03	7.22	2.26	0	0.99	1.06	1.57	0	0
2001	2.00	0.52	ns	2.98	0	2.70	8.16	1.51	1.66	5.19	4.49	6.28	0	0
2002	6.22	0.38	ns	5.83	5.93	4.51	31.73	3.37	2.99	7.15	7.37	11.64	0	0

Table 13: Estimates of density (#/100m³) of age 2+ salmon during autumn sampling of Catamaran Brook. Values derived by multiplying mean density for all salmon combined by proportion of total salmon in age class. ns = not sampled.

	Lower Reach					Gorge Reach			Middle Reach				Upper Reach	
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	3.34	0.46	ns	0.56	3.14	ns	ns	ns	2.77	ns	5.24	2.76	ns	0
1991	5.21	1.41	ns	3.48	11.00	ns	ns	ns	3.30	ns	2.67	7.35	ns	0.64
1992	12.04	2.62	ns	15.42	16.68	ns	ns	ns	0	2.71	0	4.83	ns	2.31
1993	6.98	2.72	ns	2.77	8.46	ns	ns	1.75	2.58	6.18	8.28	7.92	ns	1.86
1994	8.93	3.84	11.39	8.59	15.32	3.82	9.20	7.51	0.48	3.48	3.87	2.41	0	4.65
1995	ns	ns	ns	5.23	10.97	11.66	2.26	8.92	3.33	6.17	4.17	5.25	0	0
1996	5.59	3.75	ns	2.83	7.53	3.47	3.04	6.45	0.77	0.81	2.02	7.98	ns	0
1997	2.75	1.16	7.06	1.40	2.95	1.01	3.02	0.64	0.97	3.13	1.11	0	ns	ns
1998	2.37	0.91	ns	2.82	4.85	2.83	2.72	3.65	0.96	4.67	3.34	1.42	0	0
1999	4.66	0.78	6.10	2.44	6.37	2.01	4.15	0.98	0.47	4.59	3.63	2.15	ns	0
2000	4.51	1.03	ns	10.11	7.27	2.93	7.29	1.94	0	ns	1.75	2.87	0	0
2001	5.64	0.93	2.39	7.52	7.14	2.04	5.95	1.37	0.58	3.13	2.60	2.17	ns	0
2002	5.38	1.16	ns	3.36	7.13	4.03	10.55	4.20	0	3.59	0.82	3.87	ns	ns

Table 14: Mean density (#/100 m²) of individual age salmon (0+, 1+, 2+) for all sites within a reach combined during summer sampling in Catamaran Brook, 1990-2002. Total salmon is sum of individual mean age densities. ns = not sampled.

	Age 0+			Age 1+		
	Lower	Gorge	Middle	Upper	Lower	Gorge
1990	31.47	76.87	1.54	0.00	14.56	13.29
1991	127.61	167.90	80.71	0.00	28.00	20.24
1992	93.51	123.11	37.34	0.00	26.22	24.73
1993	66.80	110.79	38.25	0.00	17.80	22.80
1994	169.42	165.52	10.74	0.00	16.50	32.25
1995	95.79	11.66	0.00	0.00	27.16	32.96
1996	19.52	60.71	0.93	0.00	4.44	3.99
1997	12.25	143.99	0.00	0.00	13.64	25.98
1998	22.87	49.31	0.00	0.00	11.00	26.37
1999	25.20	210.37	6.05	0.00	12.64	34.70
2000	60.46	0.00	1.06	0.00	10.60	13.22
2001	4.68	0.00	0.00	0.00	13.12	27.16
2002	18.64	0.00	0.00	0.00	4.46	20.83
Total salmon						
1990	2.79	4.65	2.03	1.69	48.82	94.82
1991	9.06	12.23	8.59	5.46	164.67	200.37
1992	8.05	8.63	1.25	2.09	127.78	156.47
1993	5.78	9.88	6.63	6.56	90.38	143.48
1994	7.99	17.20	3.65	2.14	193.92	214.96
1995	6.31	5.70	7.30	0.00	129.26	50.31
1996	3.77	5.09	2.80	2.58	27.73	69.79
1997	1.07	1.77	0.82	0.00	26.95	171.74
1998	4.13	6.22	2.30	1.52	38.01	81.90
1999	4.15	13.83	6.79	1.82	41.99	258.90
2000	2.63	3.84	1.21	0.00	73.69	137.58
2001	1.84	4.12	4.41	0.00	19.64	51.50
2002	4.05	13.20	7.29	0.00	27.15	51.05

Table 15: Mean density (#/100 m²) of individual age salmon (0+, 1+, 2+) for all sites within a reach combined during autumn sampling in Catamaran Brook, 1990-2002. Total salmon is sum of individual mean age densities. ns = not sampled.

	Age 0+			Age 1		
	Lower	Gorge	Middle	Upper	Lower	Middle
1990	45.55	ns	1.99	0.00	8.28	22.18
1991	59.96	ns	60.13	3.22	18.24	5.72
1992	67.67	ns	40.31	0.00	22.05	25.26
1993	43.09	40.80	34.22	0.00	12.28	11.18
1994	124.19	82.01	17.76	0.00	14.68	18.14
1995	7.06	6.87	0.00	0.00	12.24	8.21
1996	19.75	52.05	1.47	0.00	2.91	3.54
1997	13.31	106.49	0.00	ns	14.93	21.87
1998	18.63	44.53	0.00	0.00	7.28	16.80
1999	20.17	32.84	8.94	0.00	6.76	8.31
2000	53.72	72.64	4.41	0.00	6.60	11.32
2001	9.70	22.29	1.48	0.00	15.96	21.46
2002	7.34	12.71	0.53	ns	4.32	10.98
Total salmon						
1990	1.87	ns	3.59	0.00	55.70	27.77
1991	5.27	ns	4.44	0.64	83.48	70.28
1992	11.69	ns	3.77	2.31	101.42	69.35
1993	5.23	1.75	6.24	1.86	60.61	54.40
1994	9.61	6.84	2.56	4.65	148.48	109.72
1995	8.10	7.61	4.73	0.00	27.41	36.50
1996	4.92	4.32	2.89	0.00	27.57	59.91
1997	3.07	1.55	1.73	ns	31.31	129.91
1998	2.74	3.07	2.60	0.00	28.65	64.40
1999	4.07	2.38	2.71	0.00	30.99	43.53
2000	5.73	4.05	2.31	0.00	66.05	88.02
2001	4.72	3.12	2.12	0.00	30.38	46.87
2002	3.40	6.26	2.76	ns	15.07	29.95
Total salmon						
1990	1.87	ns	3.59	0.00	55.70	27.77
1991	5.27	ns	4.44	0.64	83.48	70.28
1992	11.69	ns	3.77	2.31	101.42	69.35
1993	5.23	1.75	6.24	1.86	60.61	54.40
1994	9.61	6.84	2.56	4.65	148.48	109.72
1995	8.10	7.61	4.73	0.00	27.41	36.50
1996	4.92	4.32	2.89	0.00	27.57	59.91
1997	3.07	1.55	1.73	ns	31.31	129.91
1998	2.74	3.07	2.60	0.00	28.65	64.40
1999	4.07	2.38	2.71	0.00	30.99	43.53
2000	5.73	4.05	2.31	0.00	66.05	88.02
2001	4.72	3.12	2.12	0.00	30.38	46.87
2002	3.40	6.26	2.76	ns	15.07	29.95

Table 16: Mean fork length (cm), $\pm$ SD, of age 0+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no length data.

	Lower Reach				Gorge Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRU
1990	3.95 $\pm$ 0.27 (26)	3.97 $\pm$ 0.31 (105)	ns	4.01 $\pm$ 0.26 (78)	3.83 $\pm$ 0.31 (26)	3.69 $\pm$ 0.27 (154)	3.54 $\pm$ 0.29 (127)
1991	3.49 $\pm$ 0.33 (68)	3.33 $\pm$ 0.36 (294)	ns	3.45 $\pm$ 0.34 (181)	3.31 $\pm$ 0.36 (362)	3.67 $\pm$ 0.31 (236)	3.71 $\pm$ 0.31 (237)
1992	3.33 $\pm$ 0.19 (116)	3.23 $\pm$ 0.21 (323)	ns	3.23 $\pm$ 0.18 (150)	3.2 $\pm$ 0.23 (256)	3.8 $\pm$ 0.36 (228)	3.73 $\pm$ 0.26 (186)
1993	3.44 $\pm$ 0.24 (80)	3.42 $\pm$ 0.23 (288)	3.27 $\pm$ 0.24 (23)	3.5 $\pm$ 0.26 (84)	3.38 $\pm$ 0.2 (256)	3.29 $\pm$ 0.25 (229)	3.2 $\pm$ 0.25 (159)
1994	3.14 $\pm$ 0.15 (35)	3.17 $\pm$ 0.21 (619)	3.21 $\pm$ 0.16 (90)	3.11 $\pm$ 0.22 (378)	3.15 $\pm$ 0.2 (579)	3.57 $\pm$ 0.22 (297)	3.45 $\pm$ 0.22 (166)
1995	3.36 $\pm$ 0.22 (67)	3.4 $\pm$ 0.24 (160)	nd	3.52 $\pm$ 0.21 (132)	3.41 $\pm$ 0.19 (121)	3.78 $\pm$ 0.13 (7)	3.6 $\pm$ 0.14 (5)
1996	3.46 $\pm$ 0.2 (35)	3.6 $\pm$ 0.15 (40)	3.6 (1)	3.39 $\pm$ 0.17 (108)	3.41 $\pm$ 0.21 (34)	3.88 $\pm$ 0.32 (131)	4.11 $\pm$ 0.25 (102)
1997	4.1 (4)	4.03 $\pm$ 0.19 (57)	3.92 $\pm$ 0.36 (5)	3.93 $\pm$ 0.31 (28)	4.06 $\pm$ 0.28 (46)	3.58 $\pm$ 0.25 (195)	3.56 $\pm$ 0.26 (189)
1998	4.66 $\pm$ 0.2 (19)	4.41 $\pm$ 0.24 (78)	ns	4.29 $\pm$ 0.3 (66)	4.33 $\pm$ 0.24 (93)	3.95 $\pm$ 0.22 (110)	3.83 $\pm$ 0.23 (99)
1999	4.69 $\pm$ 0.29 (29)	4.48 $\pm$ 0.54 (29)	4.43 $\pm$ 0.36 (32)	4.66 $\pm$ 0.27 (139)	4.5 $\pm$ 0.37 (82)	3.37 $\pm$ 1.24 (178)	1.58 $\pm$ 2.02 (105)
2000	3.72 $\pm$ 0.28 (64)	2.95 $\pm$ 1.16 (89)	3.47 $\pm$ 0.29 (52)	3.42 $\pm$ 0.23 (109)	3.07 $\pm$ 0.99 (105)	4.41 $\pm$ 0.29 (122)	4.27 $\pm$ 0.3 (133)
2001	3.4 (1)	3.78 $\pm$ 0.14 (15)	ns	3.58 $\pm$ 1.04 (42)	3.66 $\pm$ 0.22 (25)	4.61 $\pm$ 0.24 (37)	4.77 $\pm$ 0.27 (17)
2002	3.64 $\pm$ 0.11 (14)	nd	ns	1.23 $\pm$ 3.02 (58)	nd	4.6 $\pm$ 0.03 (30)	4.22 $\pm$ 1 (10)
							4.54 $\pm$ 0.04 (48)

Table 16 (con't): Mean fork length (cm), +/- SD, of age 0+ Atlantic salmon during summer sampling in Middle and Upper Reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no length data.

	Middle Reach				Upper Reach	
	MF	MP	MRI	MRU	UP	URU
1990	3.73 +/- 0.08 (3)	ns	nd	nd	ns	ns
1991	3.99 +/- 0.42 (22)	ns	4.19 +/- 0.38 (145)	4.08 +/- 0.35 (96)	ns	ns
1992	3.7 +/- 0.24 (33)	ns	3.64 +/- 0.28 (49)	3.76 +/- 0.25 (97)	ns	ns
1993	3.11 +/- 0.13 (38)	3.18 +/- 0.14 (74)	3.1 +/- 0.15 (43)	3.23 +/- 0.14 (110)	ns	ns
1994	3.98 +/- 0.28 (14)	3.77 +/- 0.37 (9)	4.05 +/- 0.27 (25)	4.07 +/- 0.16 (24)	nd	nd
1995	nd	nd	nd	nd	nd	nd
1996	4.8 (1)	3.8 (1)	4.65 (2)	4.3 (2)	nd	nd
1997	nd	nd	nd	nd	nd	nd
1998	nd	nd	nd	nd	nd	nd
1999	4.42 +/- 0.18 (4)	4.01 +/- 0.32 (8)	4.53 +/- 0.15 (12)	4.45 +/- 0.22 (12)	nd	nd
2000	nd	nd	4.5 (1)	nd	nd	nd
2001	nd	nd	nd	nd	nd	nd
2002	nd	nd	nd	nd	nd	nd

Table 17: Mean fork length (cm), $\pm$ SD, of age 0+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled

	Lower Reach					Gorge Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU
1990	5.46 +/- 0.49 (51)	5.22 +/- 0.46 (141)	ns	5.43 +/- 0.39 (50)	5.25 +/- 0.53 (106)	ns	ns	ns
1991	4.93 +/- 0.48 (60)	4.84 +/- 0.44 (292)	ns	4.96 +/- 0.4 (74)	4.86 +/- 0.41 (196)	ns	ns	ns
1992	4.95 +/- 0.33 (63)	4.86 +/- 0.66 (144)	ns	4.97 +/- 0.28 (23)	4.98 +/- 0.35 (79)	ns	ns	ns
1993	4.88 +/- 0.44 (44)	5.05 +/- 0.36 (109)	ns	5.16 +/- 0.42 (72)	5.2 +/- 0.4 (90)	ns	ns	4.83 +/- 0.39 (93)
1994	5.19 +/- 0.36 (143)	4.73 +/- 0.35 (316)	4.9 +/- 0.44 (149)	4.94 +/- 0.37 (241)	4.79 +/- 0.4 (292)	5.03 +/- 0.34 (200)	5.32 +/- 0.36 (100)	4.96 +/- 0.33 (186)
1995	ns	ns	ns	5.75 +/- 0.3 (12)	6.14 +/- 0.32 (5)	5.87 +/- 0.19 (11)	5.81 +/- 0.25 (6)	5.63 +/- 0.2 (17)
1996	5.96 +/- 0.48 (37)	5.98 +/- 0.31 (32)	ns	5.91 +/- 0.33 (89)	6.16 +/- 0.42 (38)	5.69 +/- 0.39 (134)	5.69 +/- 0.39 (88)	5.45 +/- 0.45 (130)
1997	6.38 +/- 0.69 (18)	5.97 +/- 0.64 (20)	5.73 +/- 0.62 (15)	6.2 +/- 0.46 (28)	5.98 +/- 0.6 (34)	5.03 +/- 0.36 (317)	5.08 +/- 0.37 (150)	4.94 +/- 0.32 (192)
1998	6.07 +/- 0.41 (36)	5.9 +/- 0.36 (51)	ns	5.88 +/- 0.34 (24)	5.84 +/- 0.39 (93)	5.62 +/- 0.36 (131)	5.59 +/- 0.39 (62)	5.45 +/- 0.34 (187)
1999	5.63 +/- 0.43 (23)	5.34 +/- 0.57 (45)	5.64 +/- 0.67 (11)	5.68 +/- 0.32 (83)	5.62 +/- 0.6 (64)	4.91 +/- 0.35 (87)	5.01 +/- 0.77 (52)	4.73 +/- 0.26 (49)
2000	5.5 +/- 0.45 (63)	5.4 +/- 0.41 (96)	ns	5.44 +/- 0.33 (112)	5.37 +/- 0.39 (119)	5.27 +/- 0.34 (119)	5.39 +/- 0.34 (92)	5.15 +/- 0.34 (152)
2001	5.65 +/- 1.38 (7)	5.77 +/- 0.87 (20)	5.8 +/- 0.33 (6)	6.12 +/- 0.28 (31)	5.93 +/- 0.34 (32)	5.8 +/- 0.39 (38)	5.96 +/- 0.37 (19)	5.66 +/- 0.29 (73)
2002	5.37 +/- 0.07 (21)	5.72 +/- 0.05 (4)	ns	5.22 +/- 0.13 (81)	5.95 +/- 0.02 (7)	6.21 +/- 0.33 (7)	6.09 +/- 0.08 (15)	5.93 +/- 0.08 (37)

Table 17 (con't): Mean fork length (cm), +/- SD, of age 0+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no length data.

	Middle Reach			Upper Reach	
	MF	MP	MRI	MRU	UP URU
1990	6 +/- 0.36 (5)	ns	5.72 +/- 0.11 (4)	5.6 (2)	ns nd
1991	5.32 +/- 0.4 (154)	ns	5.32 +/- 0.37 (103)	5.46 +/- 0.35 (122)	ns 6.18 +/- 0.31 (10)
1992	5.25 +/- 0.6 (89)	5.38 +/- 0.38 (76)	5.42 +/- 0.33 (40)	5.32 +/- 0.43 (69)	ns nd
1993	5.39 +/- 0.43 (68)	5.25 +/- 0.36 (62)	5.59 +/- 0.29 (44)	5.51 +/- 0.35 (79)	ns nd
1994	5.68 +/- 0.36 (29)	5.57 +/- 0.29 (18)	5.86 +/- 0.29 (30)	5.93 +/- 0.31 (29)	nd nd
1995	nd	nd	nd	nd	nd nd
1996	nd	nd	6.45 (2)	6.7 (1)	ns ns
1997	nd	nd	nd	nd	ns ns
1998	nd	nd	nd	nd	nd nd
1999	6.22 (4)	6.08 +/- 0.33 (9)	6.34 +/- 0.26 (19)	6.01 +/- 0.33 (20)	ns nd
2000	6.2 (1)	ns	6.54 +/- 0.16 (7)	6.6 +/- 0.42 (12)	nd nd
2001	6.1 (1)	5.9 (1)	6 (3)	6.06 +/- 0.32 (8)	ns nd
2002	nd	nd	6.1 (1)	5.7 (1)	ns ns

Table 18: Mean fork length (cm), $\pm$ SD, of age 1+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no length data.

	Lower Reach					Gorge Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU
1990	8.0 +/- 0.63 (10)	7.43 +/- 0.64 (31)	ns	7.59 +/- 0.5 (34)	7.85 +/- 0.66 (27)	7.71 +/- 0.59 (19)	7.7 +/- 0.72 (32)	7.66 +/- 0.59 (17)
1991	7.14 +/- 0.71 (28)	7.22 +/- 0.63 (37)	ns	7.14 +/- 0.66 (64)	7.04 +/- 0.61 (59)	7.76 +/- 0.48 (24)	7.68 +/- 0.58 (36)	7.81 +/- 0.6 (18)
1992	7.16 +/- 0.58 (33)	6.88 +/- 0.59 (39)	ns	7.09 +/- 0.46 (89)	7 +/- 0.57 (56)	7.7 +/- 0.73 (51)	7.8 +/- 0.53 (66)	7.82 +/- 0.57 (24)
1993	6.91 +/- 0.61 (30)	7.0 +/- 0.74 (29)	7.2 +/- 0.62 (5)	6.99 +/- 0.56 (67)	6.98 +/- 0.59 (48)	6.99 +/- 0.53 (44)	6.95 +/- 0.62 (49)	6.84 +/- 0.59 (37)
1994	7.01 +/- 0.67 (20)	6.87 +/- 0.61 (21)	6.85 +/- 0.49 (8)	7.07 +/- 0.59 (59)	6.97 +/- 0.6 (43)	7.43 +/- 0.49 (46)	7.43 +/- 0.47 (54)	7.31 +/- 0.55 (27)
1995	7.48 +/- 0.73 (47)	7.33 +/- 0.57 (25)	7.54 +/- 0.66 (26)	7.35 +/- 0.65 (107)	7.21 +/- 0.65 (59)	7.76 +/- 0.61 (46)	7.77 +/- 0.65 (47)	7.65 +/- 0.64 (92)
1996	7.54 +/- 0.75 (9)	7.55 (2)	nd	7.25 +/- 0.56 (21)	7.25 +/- 0.41 (6)	8.94 +/- 0.52 (5)	8.5 +/- 0.49 (12)	8.64 +/- 0.56 (7)
1997	8.2 +/- 0.72 (23)	8.21 +/- 0.59 (32)	8.0 +/- 0.59 (17)	8.05 +/- 0.52 (48)	8.2 +/- 0.62 (36)	7.87 +/- 0.69 (54)	8.06 +/- 0.75 (75)	7.95 +/- 0.78 (41)
1998	8.01 +/- 0.71 (15)	7.73 +/- 0.61 (25)	ns	7.76 +/- 0.69 (39)	7.92 +/- 0.75 (39)	7.84 +/- 0.62 (59)	7.89 +/- 0.62 (75)	7.7 +/- 0.57 (44)
1999	8.36 +/- 0.66 (17)	8.11 +/- 0.79 (8)	8.18 +/- 0.88 (24)	8.11 +/- 0.59 (62)	8.06 +/- 0.6 (42)	7.57 +/- 0.59 (49)	7.74 +/- 0.57 (75)	7.87 +/- 0.53 (32)
2000	7.67 +/- 1.08 (14)	7.46 +/- 0.8 (12)	7.8 +/- 0.59 (15)	7.34 +/- 0.78 (59)	7.45 +/- 0.77 (17)	8.02 +/- 0.66 (11)	8.18 +/- 0.57 (36)	7.91 +/- 0.81 (19)
2001	8.03 +/- 0.73 (21)	7.45 +/- 0.45 (27)	ns	7.6 +/- 0.61 (95)	7.64 +/- 0.68 (41)	8.02 +/- 0.75 (55)	7.95 +/- 0.74 (45)	7.82 +/- 0.65 (56)
2002	8.18 +/- 0.19 (7)	nd	ns	7.97 +/- 0.43 (28)	8.41 +/- 0.47 (8)	8.17 +/- 0.4 (17)	8.29 +/- 0.43 (27)	8.28 +/- 0.24 (33)

Table 18 (con't): Mean fork length (cm), $\pm$ SD, of age 1+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no length data.

	Middle Reach			Upper Reach	
	MF	MP	MRJ	MRU	UP URU
1990	7.46 $\pm$ 0.63 (48)	ns	7.51 $\pm$ 0.63 (52)	7.45 $\pm$ 0.58 (49)	ns 8.12 $\pm$ 0.46 (5)
1991	7.96 $\pm$ 0.25 (3)	ns	7.74 $\pm$ 0.73 (20)	7.93 $\pm$ 1.07 (6)	ns 8.2 (1)
1992	7.87 $\pm$ 0.55 (10)	ns	7.55 $\pm$ 0.58 (74)	7.67 $\pm$ 0.63 (31)	ns 8.56 (5)
1993	6.93 $\pm$ 0.51 (15)	7.18 $\pm$ 0.4 (11)	7.31 $\pm$ 0.59 (30)	7.33 $\pm$ 0.71 (43)	ns 7.67 $\pm$ 0.74 (4)
1994	7.82 $\pm$ 0.52 (7)	7.61 $\pm$ 0.59 (19)	7.65 $\pm$ 0.57 (31)	7.77 $\pm$ 0.57 (31)	nd nd
1995	8.43 $\pm$ 0.73 (9)	8.37 $\pm$ 0.54 (21)	8.06 $\pm$ 1 (18)	8.36 $\pm$ 0.41 (25)	nd nd
1996	nd	nd	7.6 (2)	7.82 $\pm$ 0.58 (4)	nd ns
1997	8.3 (2)	8.8 (2)	9.11 $\pm$ 0.8 (6)	8.12 $\pm$ 0.64 (8)	ns ns
1998	7.83 $\pm$ 0.62 (19)	8 $\pm$ 0.64 (14)	7.9 $\pm$ 0.58 (26)	7.91 $\pm$ 0.7 (32)	ns ns
1999	nd	8.4 (2)	8.5 (2)	8.31 $\pm$ 0.4 (6)	ns ns
2000	8.23 $\pm$ 0.45 (8)	8.08 $\pm$ 0.85 (15)	8.16 $\pm$ 0.67 (25)	8.47 $\pm$ 0.82 (26)	nd nd
2001	8.16 $\pm$ 0.57 (5)	8.3 $\pm$ 0.68 (8)	8.22 $\pm$ 0.5 (20)	8.31 $\pm$ 0.61 (25)	nd nd
2002	7.9 $\pm$ 0.7 (2)	8.34 $\pm$ 0.32 (17)	8.07 $\pm$ 0.17 (20)	8.02 $\pm$ 0.26 (18)	nd nd

Table 19: Mean fork length (cm), $\pm$ SD, of age 1+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no length data.

	Lower Reach					Gorge Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU
1990	8.49 +/- 0.55 (11)	8.12 +/- 0.59 (15)	ns	8.39 +/- 0.57 (16)	8.34 +/- 0.54 (19)	ns	ns	ns
1991	8.06 +/- 0.64 (30)	8.1 +/- 0.61 (42)	ns	7.81 +/- 0.66 (43)	7.96 +/- 0.66 (51)	ns	ns	ns
1992	7.86 +/- 0.7 (17)	7.73 +/- 0.66 (28)	ns	7.97 +/- 0.61 (19)	7.99 +/- 0.57 (27)	ns	ns	ns
1993	7.58 +/- 0.5 (12)	7.7 +/- 0.38 (12)	ns	7.69 +/- 0.45 (38)	7.89 +/- 0.45 (24)	ns	ns	7.72 +/- 0.61 (27)
1994	7.48 +/- 0.56 (28)	7.62 +/- 0.63 (23)	7.84 +/- 0.49 (10)	7.79 +/- 0.48 (52)	7.88 +/- 0.48 (24)	7.79 +/- 0.66 (46)	8.04 +/- 0.72 (37)	7.86 +/- 0.81 (38)
1995	ns	ns	ns	8.15 +/- 0.45 (18)	8.01 +/- 0.49 (12)	8.37 +/- 0.58 (55)	8.4 +/- 0.64 (36)	8.07 +/- 0.6 (26)
1996	8.7 +/- 0.21 (4)	nd	ns	8.21 +/- 0.35 (7)	8.87 +/- 0.36 (10)	9.05 +/- 0.72 (10)	9.22 +/- 0.85 (7)	9.27 +/- 0.62 (7)
1997	9.08 +/- 0.59 (26)	8.79 +/- 0.58 (21)	8.74 +/- 0.6 (20)	8.74 +/- 0.53 (27)	8.96 +/- 0.59 (28)	8.28 +/- 0.71 (61)	8.49 +/- 0.68 (42)	8.57 +/- 0.77 (31)
1998	8.58 +/- 0.42 (12)	8.4 +/- 0.6 (14)	ns	8.68 +/- 0.64 (15)	8.5 +/- 0.62 (32)	8.19 +/- 0.51 (44)	8.34 +/- 0.61 (36)	8.36 +/- 0.75 (58)
1999	8.81 +/- 0.49 (7)	8.11 +/- 0.71 (14)	9.0 +/- 0.7 (4)	8.22 +/- 0.58 (29)	8.4 +/- 0.8 (22)	8.16 +/- 0.58 (13)	7.83 +/- 0.62 (17)	8.11 +/- 0.44 (17)
2000	8.1 +/- 0.53 (8)	8.18 +/- 0.55 (10)	ns	7.89 +/- 0.57 (19)	8.15 +/- 0.37 (19)	8.47 +/- 0.5 (16)	8.26 +/- 0.31 (19)	8.03 +/- 0.53 (19)
2001	8.35 +/- 0.65 (25)	8.01 +/- 0.44 (26)	8.35 +/- 0.6 (17)	8.33 +/- 0.67 (57)	8.16 +/- 0.57 (35)	8.0 +/- 0.76 (27)	8.18 +/- 0.65 (41)	7.93 +/- 0.72 (44)
2002	9.55 +/- <0.1 (4)	8.96 +/- 0.47 (12)	ns	8.71 +/- 0.94 (10)	9.08 +/- 0.69 (20)	8.16 +/- 0.6 (5)	8.41 +/- 0.21 (16)	8.28 +/- 0.15 (29)

Table 19 (con't): Mean fork length (cm), +/- SD, of age 1+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no length data.

	Middle Reach			Upper Reach		
	MF	MP	MRI	MRU	UP	URU
1990	8.0 +/- 0.58 (36)	ns	7.83 +/- 0.52 (44)	7.98 +/- 0.65 (34)	ns	8.53 +/- 0.63 (9)
1991	8.29 +/- 0.39 (18)	ns	8.33 (6)	8.25 +/- 0.47 (13)	ns	8.5 (2)
1992	8.21 +/- 0.47 (50)	8.5 +/- 0.7 (48)	8.29 +/- 0.71 (32)	8.59 +/- 0.61 (40)	ns	8.44 +/- 0.45 (11)
1993	8.1 +/- 0.52 (21)	8.14 +/- 0.47 (19)	8.48 +/- 0.48 (15)	8.35 +/- 0.55 (28)	ns	8.83 (3)
1994	8.44 +/- 0.59 (24)	8.34 +/- 0.48 (30)	8.5 +/- 0.41 (24)	8.46 +/- 0.55 (31)	nd	nd
1995	8.76 +/- 0.45 (10)	9.04 +/- 0.24 (7)	8.59 +/- 0.55 (16)	8.8 +/- 0.39 (29)	nd	nd
1996	9.25 +/- 0.07 (2)	nd	8.7 (3)	9.3 (1)	ns	nd
1997	9.9 (1)	9.5 +/- 0.64 (5)	9.68 +/- 0.4 (6)	9.45 (4)	ns	ns
1998	8.91 +/- 0.61 (6)	8.58 +/- 0.64 (15)	8.5 +/- 0.6 (20)	8.52 +/- 0.63 (28)	nd	8.9 (1)
1999	9.4 (1)	8.6 +/- 0.14 (2)	nd	8.78 +/- 0.66 (8)	ns	nd
2000	8.53 +/- 0.34 (6)	ns	8.7 +/- 0.61 (20)	9.0 +/- 0.53 (16)	nd	nd
2001	8.36 +/- 0.65 (10)	8.17 +/- 0.69 (21)	7.99 +/- 0.63 (18)	8.33 +/- 0.6 (38)	ns	nd
2002	8.43 +/- 0.15 (3)	8.58 +/- 0.43 (10)	8.25 +/- 0.3 (11)	8.19 +/- 0.2 (24)	ns	ns

Table 20: Mean fork length (cm), $\pm$ SD, of age 2+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no length data.

	Lower Reach					Gorge Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU
1990	10.82 +/- 0.79 (5)	10.15 (2)	ns	10.76 +/- 0.57 (3)	11.75 +/- 0.42 (6)	11 +/- 0.57 (6)	11.14 +/- 0.97 (10)	11 +/- 0.73 (7)
1991	10.2 +/- 1.01 (11)	9.26 (3)	ns	10.71 +/- 0.86 (16)	10.57 +/- 0.7 (26)	11 +/- 0.7 (9)	11.1 +/- 0.81 (23)	10.86 +/- 0.59 (13)
1992	10.02 +/- 0.98 (16)	9.4 +/- 0.09 (4)	ns	9.91 +/- 0.79 (31)	9.79 +/- 0.86 (11)	10.65 +/- 0.92 (10)	10.78 +/- 0.75 (29)	10.72 +/- 0.91 (7)
1993	10.6 +/- 0.91 (11)	10.38 (5)	9.3 +/- 0.42 (2)	9.88 +/- 0.99 (21)	10.18 +/- 0.91 (17)	10.31 +/- 0.72 (16)	10.1 +/- 0.98 (33)	10.5 +/- 1.22 (4)
1994	9.95 (2)	10.02 +/- 0.64 (10)	9.71 +/- 0.83 (6)	9.66 +/- 0.92 (38)	9.91 +/- 0.78 (18)	10.15 +/- 0.79 (10)	10.25 +/- 0.77 (35)	10.36 +/- 0.83 (11)
1995	10.84 +/- 1.11 (9)	9.96 (3)	10.77 +/- 0.82 (10)	10.38 +/- 0.94 (22)	10.86 +/- 0.69 (13)	10.3 (3)	11.18 +/- 1.03 (16)	10.71 +/- 0.31 (6)
1996	10.03 +/- 0.54 (8)	9.54 +/- 0.37 (5)	10.44 +/- 0.84 (5)	10.03 +/- 0.69 (13)	9.65 +/- 0.63 (4)	11.2 (1)	11.6 +/- 0.59 (16)	11.8 +/- 1.12 (12)
1997	10.83 (3)	10.45 (2)	10.6 (1)	10.6 (2)	11.4 +/- 0.74 (3)	11.7 +/- 1.13 (3)	11.41 +/- 0.48 (7)	10.4 (1)
1998	10.33 (3)	10.4 +/- 0.81 (5)	ns	10.65 +/- 0.68 (17)	11.06 +/- 0.71 (20)	10.9 +/- 0.62 (10)	11.36 +/- 0.76 (20)	11.33 +/- 0.8 (11)
1999	10.71 +/- 0.81 (6)	11 +/- 0.64 (7)	10.85 +/- 0.49 (10)	10.65 +/- 0.66 (13)	10.66 +/- 0.52 (13)	10.38 +/- 0.73 (22)	10.67 +/- 0.8 (33)	10.88 +/- 0.79 (8)
2000	10.7 +/- 1.36 (4)	10.9 (1)	10.98 +/- 0.7 (6)	10.98 +/- 1.77 (12)	10.42 (4)	10.36 +/- 0.92 (3)	11.72 +/- 1.36 (11)	10.78 +/- 1.35 (5)
2001	10.4 +/- 0.57 (4)	10.35 (2)	ns	10.62 +/- 0.83 (13)	10.65 +/- 0.6 (6)	10.88 +/- 0.75 (5)	10.74 +/- 0.43 (12)	10.92 (4)
2002	11.16 +/- 3.7 (10)	10.1 (2)	ns	10.48 +/- 0.43 (18)	10.55 +/- 0.35 (11)	10.78 +/- 0.25 (10)	10.83 +/- 0.94 (22)	10.4 +/- 0.43 (7)

Table 20 (con't): Mean fork length (cm), $\pm$ SD, of age 2+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no length data.

	Middle Reach			Upper Reach	
	MF	MP	MRI	MRU	UP
1990	nd	ns	10.67 $\pm$ 0.87 (4)	10.6 $\pm$ 0.2 (4)	ns
1991	10.36 $\pm$ 0.83 (5)	ns	10.4 $\pm$ 0.73 (16)	10.48 $\pm$ 0.77 (8)	ns
1992	11.5 (1)	ns	12.16 (3)	12.15 (2)	ns
1993	10.11 $\pm$ 0.67 (11)	9.9 $\pm$ 0.59 (6)	10.4 $\pm$ 0.61 (11)	10.18 $\pm$ 0.89 (19)	ns
1994	10.23 (3)	10.33 $\pm$ 0.74 (6)	10.2 $\pm$ 0.49 (8)	10.25 $\pm$ 0.72 (7)	nd
1995	10.98 $\pm$ 0.49 (5)	10.96 $\pm$ 0.76 (19)	10.95 $\pm$ 0.71 (11)	11.11 $\pm$ 0.7 (11)	nd
1996	11.05 $\pm$ 0.49 (2)	11.72 $\pm$ 0.96 (5)	11.47 $\pm$ 0.81 (7)	11.12 $\pm$ 0.98 (5)	11.16 $\pm$ 1.2 (3)
1997	nd	13.45 (2)	nd	13.4 (1)	nd
1998	11.4 (2)	10.64 $\pm$ 1.19 (5)	11.67 $\pm$ 0.24 (4)	11.12 $\pm$ 0.83 (9)	11.1 (1)
1999	11.23 (3)	11.16 $\pm$ 0.67 (12)	11.35 $\pm$ 0.59 (12)	11.11 $\pm$ 0.67 (14)	nd
2000	nd	12.0 (2)	11.5 (1)	12.23 (3)	nd
2001	10.23 (3)	10.72 $\pm$ 0.74 (5)	10.95 $\pm$ 0.73 (10)	11.0 $\pm$ 0.79 (10)	nd
2002	11.75 $\pm$ 1.06 (2)	10.43 $\pm$ 0.49 (10)	10.67 $\pm$ 0.81 (14)	10.5 $\pm$ 0.75 (14)	nd

Table 21: Mean fork length (cm), +/- SD, of age 2+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled.

	Lower Reach				Gorge Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRI
1990	11.36 +/- 0.59 (5)	10.7 (1)	ns	11.8 (1)	11 +/- 0.84 (6)	ns	ns
1991	11.08 +/- 0.97 (9)	11 +/- 0.58 (5)	ns	11.7 +/- 0.82 (7)	11.92 +/- 0.84 (25)	ns	ns
1992	10.88 +/- 0.88 (10)	10.92 +/- 0.79 (5)	ns	10.92 +/- 0.69 (14)	11.11 +/- 0.95 (14)	ns	ns
1993	10.33 +/- 1.1 (6)	10.57 +/- 0.64 (8)	ns	10.4 +/- 0.94 (6)	11.15 +/- 1.24 (15)	ns	10.32 (4)
1994	10.76 +/- 1.07 (13)	9.95 +/- 0.82 (11)	10.78 +/- 1.08 (11)	10.58 +/- 0.98 (19)	10.69 +/- 1.02 (30)	11.14 +/- 0.78 (9)	11.13 +/- 0.61 (15)
1995	ns	ns	ns	11.16 +/- 0.68 (6)	10.77 +/- 0.74 (15)	11.44 +/- 0.72 (23)	11.18 +/- 0.7 (13)
1996	11.69 +/- 0.87 (11)	10.7 +/- 0.43 (7)	ns	11.52 +/- 1.06 (10)	11.78 +/- 0.84 (16)	12.17 +/- 0.91 (9)	11.55 +/- 0.62 (14)
1997	11.6 (4)	11.25 +/- 0.35 (2)	10.57 +/- 0.3 (7)	11.06 +/- 0.69 (3)	11.27 +/- 0.51 (7)	11.6 +/- 1.2 (3)	10.6 (1)
1998	11.1 +/- 1.56 (5)	11.16 (3)	ns	12.45 +/- 1.71 (4)	11.28 +/- 0.97 (18)	11.87 +/- 0.77 (7)	12.03 +/- 0.75 (13)
1999	11.35 +/- 0.89 (6)	10.6 (2)	11.31 +/- 0.73 (6)	11.18 +/- 0.65 (7)	11.1 +/- 0.56 (16)	10.85 (4)	11.24 +/- 1.39 (7)
2000	10.57 +/- 1.24 (8)	10.25 +/- 0.65 (4)	ns	10.93 +/- 1.24 (19)	12.09 +/- 1.98 (15)	11.06 +/- 0.46 (5)	11.76 +/- 1.72 (9)
2001	10.98 +/- 0.74 (11)	11 (3)	10.66 +/- 0.49 (3)	11 +/- 0.79 (21)	10.81 +/- 0.74 (10)	10.6 +/- 0.36 (4)	11.86 +/- 0.69 (8)
2002	11.46 +/- 0.71 (9)	11.1 +/- 0.8 (4)	ns	11.08 +/- 0.69 (14)	11.47 +/- 0.5 (14)	10.26 +/- 0.87 (3)	10.51 +/- 0.69 (10)

Table 21 (con't): Mean fork length (cm), $\pm$ SD, of age 2+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no length data.

	Middle Reach			Upper Reach	
	MF	MP	MRI	MRU	URU
1990	10.35 $\pm$ 0.53 (7)	ns	11.36 $\pm$ 1.33 (8)	11.05 $\pm$ 1.3 (4)	ns
1991	10.44 $\pm$ 0.93 (9)	ns	11.24 (5)	11.29 $\pm$ 0.91 (13)	ns
1992	nd	10.8 $\pm$ 1.33 (4)	nd	10.45 $\pm$ 0.62 (7)	11.5 $\pm$ 1.35 (3)
1993	10.71 $\pm$ 0.67 (6)	10.74 $\pm$ 0.74 (9)	10.69 $\pm$ 1.02 (12)	10.97 $\pm$ 0.9 (18)	ns
1994	10.7 (1)	11.13 $\pm$ 0.72 (6)	11.2 $\pm$ 0.71 (5)	10.3 (3)	12.01 (4)
1995	10.86 $\pm$ 4.5 (8)	11 $\pm$ 0.96 (11)	10.94 $\pm$ 0.93 (7)	11.17 $\pm$ 0.81 (10)	nd
1996	11.8 (1)	12.4 (1)	12.43 (3)	11.76 $\pm$ 0.47 (5)	ns
1997	10.8 (1)	11.66 $\pm$ 1.02 (5)	11.1 (2)	nd	ns
1998	10.8 (1)	10.76 $\pm$ 0.68 (5)	11.75 $\pm$ 0.84 (6)	11.06 $\pm$ 1.5 (3)	nd
1999	11.5 (1)	11.46 $\pm$ 0.2 (3)	11.68 $\pm$ 0.7 (6)	11.72 $\pm$ 0.66 (5)	nd
2000	nd	ns	10.76 $\pm$ 0.65 (3)	11.57 $\pm$ 0.18 (4)	nd
2001	10.2 (1)	11.25 $\pm$ 0.37 (6)	11.6 (4)	11.28 $\pm$ 0.74 (6)	nd
2002	nd	11.8 $\pm$ 1.1 (4)	10.5 (1)	11.12 $\pm$ 1.11 (5)	ns

Table 22: Mean fork length (cm) of individual age salmon (0+, 1+, 2+) for all sites within a reach combined during summer sampling in Catamaran Brook, 1990-2002. ns = not sampled; nd = weight data not collected.

	Age 0+			Age 1+		
	Lower	Gorge	Middle	Upper	Lower	Gorge
1990	3.95	3.61	3.73	ns	7.72	7.70
1991	3.40	3.68	4.14	ns	7.14	7.76
1992	3.25	3.79	3.71	ns	7.04	7.78
1993	3.41	3.26	3.17	ns	7.02	6.93
1994	3.16	3.50	4.07	nd	6.96	7.40
1995	3.43	3.70	nd	nd	7.39	7.73
1996	3.49	4.04	4.48	nd	7.40	8.70
1997	4.01	3.57	nd	nd	8.14	7.97
1998	4.43	3.87	nd	nd	7.86	7.81
1999	4.56	2.24	4.50	nd	8.17	7.74
2000	3.33	4.35	4.50	nd	7.55	8.04
2001	3.61	4.68	nd	nd	7.68	7.94
2002	2.43	4.45	nd	nd	8.18	8.25
Age 2+						
1990	10.87	11.05	10.64	10.10		
1991	10.19	10.99	10.44	11.48		
1992	9.78	10.72	12.16	10.20		
1993	10.07	10.31	10.29	10.69		
1994	9.85	10.26	10.23	12.45		
1995	10.57	10.73	11.04	nd		
1996	9.94	11.53	11.30	10.98		
1997	10.78	11.17	13.40	nd		
1998	10.61	11.20	11.40	11.10		
1999	10.78	10.65	11.23	11.30		
2000	10.80	10.96	11.87	nd		
2001	10.51	10.85	10.98	nd		
2002	10.57	10.67	10.84	nd		

Table 23: Mean fork length (cm) of individual age salmon (0+, 1+, 2+) for all sites within a reach combined during autumn sampling in Catamaran Brook, 1990-2002. ns = not sampled; nd = weight data not collected.

	Age 0+				Age 1+			
	Lower	Gorge	Middle	Upper	Lower	Gorge	Middle	Upper
1990	5.35	ns	5.78	nd	8.34	ns	7.94	8.53
1991	4.90	ns	5.37	6.18	7.99	ns	8.29	8.50
1992	4.94	ns	5.35	nd	7.89	ns	8.40	8.44
1993	5.08	4.83	5.44	nd	7.72	7.73	8.27	8.83
1994	4.91	5.11	5.76	nd	7.73	7.90	8.44	nd
1995	5.95	5.77	nd	nd	8.09	8.28	8.80	nd
1996	6.01	5.62	6.58	nd	8.59	9.18	9.08	nd
1997	6.06	5.02	nd	ns	8.87	8.45	9.63	ns
1998	5.93	5.56	nd	nd	8.54	8.30	8.63	8.90
1999	5.59	4.89	6.17	nd	8.51	8.04	8.93	nd
2000	5.43	5.27	6.45	nd	8.08	8.26	8.75	nd
2001	5.86	5.81	6.02	nd	8.25	8.04	8.22	nd
2002	5.56	6.07	5.9	ns	9.1	8.28	8.36	ns

	Age 2+		
	Lower	Gorge	Middle
1990	11.22	ns	10.92
1991	11.43	ns	10.99
1992	10.96	ns	10.63
1993	10.62	10.33	10.78
1994	10.56	11.01	10.83
1995	10.97	11.59	11.00
1996	11.42	12.01	12.10
1997	11.15	11.22	11.19
1998	11.50	11.90	11.09
1999	11.11	11.05	11.59
2000	10.96	11.33	11.17
2001	10.89	11.41	11.08
2002	11.27	10.45	11.14

Table 24: Mean weight (g), $\pm$ SD, of age 0+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Lower Reach				LRU	Gorge Reach		
	LBRU	LF	LP	LRI		GBRU	GRI	GRU
1990	0.63 +/- 0.02 (23)	nd	ns	nd	nd	0.47 +/- 0.01 (64)	0.4 +/- 0.02 (17)	nd
1991	0.35 +/- 0.01 (41)	0.37 +/- 0.13 (204)	ns	0.44 +/- 0.1 (151)	0.35 +/- 0.04 (235)	0.5 +/- 0.02 (93)	0.52 +/- 0.02 (155)	0.53 +/- 0.07 (151)
1992	0.36 +/- 0.01 (116)	0.32 +/- 0.16 (240)	ns	0.32 +/- 0.01 (151)	0.33 +/- 0.05 (255)	0.56 +/- 0.01 (219)	0.5 +/- 0.01 (186)	0.57 +/- 0.2 (318)
1993	0.35 +/- 0.01 (72)	0.35 +/- 0.09 (106)	0.48 +/- 0.39 (22)	0.42 +/- 0.1 (82)	0.37 +/- 0.01 (119)	0.35 +/- 0.01 (111)	0.35 +/- 0.06 (110)	0.31 +/- 0.01 (53)
1994	0.32 +/- 0.04 (35)	0.33 +/- 0.06 (103)	0.31 +/- 0.06 (78)	0.33 +/- 0.13 (101)	0.35 +/- 0.27 (102)	0.49 +/- 0.1 (109)	0.47 +/- 0.1 (81)	0.44 +/- 0.1 (108)
1995	0.34 +/- 0.08 (66)	0.34 +/- 0.08 (98)	nd	0.4 +/- 0.09 (81)	0.35 +/- 0.08 (71)	0.54 +/- 0.04 (7)	0.47 +/- 0.05 (5)	0.5 +/- 0.13 (65)
1996	0.39 +/- 0.06 (35)	0.44 +/- 0.05 (40)	0.42 (1)	0.39 +/- 0.06 (61)	0.38 +/- 0.06 (34)	0.64 +/- 0.18 (99)	0.73 +/- 0.14 (69)	0.71 +/- 0.17 (143)
1997	0.72 +/- 0.05 (3)	0.68 +/- 0.12 (54)	0.69 +/- 0.2 (5)	0.63 +/- 0.11 (24)	0.76 +/- 0.21 (39)	0.48 +/- 0.1 (136)	0.45 +/- 0.09 (156)	0.46 +/- 0.1 (100)
1998	1.07 +/- 0.21 (16)	0.83 +/- 0.17 (61)	ns	0.77 +/- 0.2 (63)	0.79 +/- 0.14 (83)	0.38 +/- 0.12 (76)	0.59 +/- 0.13 (27)	0.5 +/- 0.11 (89)
1999	0.88 +/- 0.4 (25)	0.85 +/- 0.34 (27)	0.86 +/- 0.28 (30)	1.05 +/- 0.18 (109)	0.8 +/- 0.32 (74)	0.31 +/- 0.36 (110)	0.27 +/- 0.47 (95)	0.21 +/- 0.27 (108)
2000	0.48 +/- 0.11 (61)	0.3 +/- 0.14 (85)	0.5 +/- 0.58 (46)	0.33 +/- 0.08 (106)	0.32 +/- 0.17 (78)	0.89 +/- 0.2 (68)	0.86 +/- 0.21 (48)	0.83 +/- 0.51 (144)
2001	0.35 (1)	0.41 +/- 0.17 (13)	ns	0.54 +/- 0.36 (40)	0.39 +/- 0.17 (22)	1.01 +/- 0.73 (35)	1.22 +/- 0.89 (16)	1.05 +/- 0.2 (77)
2002	0.31 +/- 0.1 (14)	nd	ns	0.16 +/- 0.06 (58)	nd	1.12 +/- 0.06 (30)	1.02 +/- 0.11 (10)	1.13 +/- 0.02 (48)

Table 24 (con't): Mean weight (g), $\pm$ SD, of age 0+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Middle Reach				Upper Reach	
	MF	MP	MRI	MRU	UP	URU
1990	0.5 (3)	ns	nd	nd	ns	nd
1991	0.69 $\pm$ 0.05 (22)	ns	0.8 $\pm$ 0.04 (130)	0.7 $\pm$ 0.04 (95)	ns	nd
1992	0.53 $\pm$ 0.1 (33)	ns	0.5 $\pm$ 0.01 (50)	0.54 $\pm$ 0.01 (98)	ns	nd
1993	0.29 $\pm$ 0.01 (38)	0.3 $\pm$ 0.01 (74)	0.27 $\pm$ 0.01 (43)	0.36 $\pm$ 0.08 (86)	ns	nd
1994	0.67 $\pm$ 0.18 (13)	1.29 $\pm$ 0.18 (10)	0.7 $\pm$ 0.15 (23)	0.74 $\pm$ 0.12 (24)	nd	nd
1995	nd	nd	nd	nd	nd	nd
1996	0.72 (1)	0.53 (1)	1.04 (2)	0.73 (2)	nd	nd
1997	nd	nd	nd	nd	nd	nd
1998	nd	nd	nd	nd	nd	nd
1999	0.82 $\pm$ 0.19 (4)	0.56 $\pm$ 0.25 (7)	0.94 $\pm$ 0.11 (12)	0.69 $\pm$ 0.37 (10)	nd	nd
2000	nd	nd	1.04 (1)	nd	nd	nd
2001	nd	nd	nd	nd	nd	nd
2002	nd	nd	nd	nd	nd	nd

Table 25: Mean weight (g), $\pm$ SD, of age 0+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Lower Reach				Gorge Reach			
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU
1990	1.75 +/- 0.26 (51)	1.57 +/- 0.44 (136)	ns	1.74 +/- 0.13 (50)	1.69 +/- 0.26 (87)	ns	ns	ns
1991	1.16 +/- 0.14 (60)	1.11 +/- 0.35 (160)	ns	1.15 +/- 0.09 (75)	1.09 +/- 0.09 (196)	ns	ns	ns
1992	1.18 +/- 0.04 (28)	1.12 +/- 0.25 (72)	ns	1.37 +/- 0.06 (23)	1.35 +/- 0.73 (81)	ns	ns	ns
1993	1.18 +/- 0.14 (42)	1.3 +/- 0.27 (93)	ns	1.46 +/- 0.1 (67)	1.38 +/- 0.09 (89)	ns	ns	1.25 +/- 0.48 (93)
1994	1.97 +/- 5.98 (107)	1.13 +/- 0.41 (98)	nd	1.38 +/- 0.64 (160)	1.14 +/- 0.29 (132)	1.33 +/- 0.28 (99)	1.63 +/- 0.49 (82)	1.28 +/- 0.28 (102)
1995	ns	ns	ns	1.83 +/- 0.28 (12)	2.04 +/- 0.41 (5)	1.98 +/- 0.23 (11)	1.96 +/- 0.35 (6)	1.88 +/- 0.18 (17)
1996	2.1 +/- 0.51 (37)	2.13 +/- 0.34 (32)	ns	2.07 +/- 0.36 (89)	2.35 +/- 0.45 (38)	1.84 +/- 0.39 (134)	1.9 +/- 0.44 (88)	1.69 +/- 0.42 (130)
1997	2.67 +/- 0.82 (18)	2.28 +/- 0.87 (20)	2.23 +/- 0.73 (14)	2.48 +/- 0.58 (28)	2.4 +/- 0.7 (33)	1.28 +/- 0.28 (194)	1.35 +/- 0.31 (103)	1.18 +/- 0.28 (64)
1998	2.16 +/- 0.47 (35)	1.97 +/- 0.45 (51)	ns	1.85 +/- 0.35 (24)	2.02 +/- 0.84 (93)	1.81 +/- 0.35 (131)	1.79 +/- 0.35 (62)	1.68 +/- 0.52 (184)
1999	1.74 +/- 0.41 (23)	1.43 +/- 0.57 (44)	1.75 +/- 0.63 (11)	1.77 +/- 0.33 (83)	1.78 +/- 0.59 (63)	1.11 +/- 0.23 (83)	1.24 +/- 0.34 (51)	0.97 +/- 0.17 (47)
2000	1.83 +/- 0.65 (63)	1.56 +/- 0.36 (95)	ns	1.59 +/- 0.32 (110)	1.65 +/- 0.9 (119)	1.46 +/- 0.29 (119)	1.59 +/- 0.34 (91)	1.41 +/- 0.51 (150)
2001	2.83 +/- 2.8 (7)	2.07 +/- 0.57 (20)	2 +/- 0.29 (6)	2.29 +/- 0.3 (31)	2.27 +/- 1.38 (32)	1.91 +/- 0.43 (38)	2.2 +/- 0.36 (20)	1.76 +/- 0.3 (73)
2002	1.48 +/- 0.04 (21)	1.98 +/- 0.03 (4)	ns	0.92 +/- 0.53 (81)	2.2 +/- 0.02 (7)	2.66 +/- 0.42 (7)	2.54 +/- 0.1 (15)	2.06 +/- 0.5 (37)

Table 25 (cont): Mean weight (g), $\pm$ SD, of age 0+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Middle Reach				Upper Reach	
	MF	MP	MRI	MRU	UP	URU
1990	2.61 $\pm$ 0.39 (5)	ns	2.13 (4)	2.2 (2)	ns	nd
1991	1.54 $\pm$ 0.13 (154)	ns	1.46 $\pm$ 0.09 (103)	1.62 $\pm$ 0.12 (87)	ns	2.37 $\pm$ 0.4 (10)
1992	1.62 $\pm$ 0.14 (90)	1.63 $\pm$ 0.22 (77)	1.6 $\pm$ 0.09 (40)	1.54 $\pm$ 0.13 (60)	ns	nd
1993	1.65 $\pm$ 0.1 (68)	1.5 $\pm$ 0.07 (30)	1.75 $\pm$ 0.07 (44)	1.7 $\pm$ 0.09 (77)	ns	nd
1994	1.96 $\pm$ 0.34 (29)	1.88 $\pm$ 0.32 (18)	2.26 $\pm$ 0.48 (11)	2.23 $\pm$ 0.38 (19)	nd	nd
1995	nd	nd	nd	nd	nd	nd
1996	nd	nd	3.02 (2)	3.35 (1)	ns	nd
1997	nd	nd	nd	nd	ns	ns
1998	nd	nd	nd	nd	nd	nd
1999	2.62 (4)	2.41 $\pm$ 0.48 (9)	2.71 $\pm$ 0.41 (19)	2.23 $\pm$ 0.38 (20)	ns	nd
2000	2.05 (1)	nd	2.79 $\pm$ 0.22 (7)	2.76 $\pm$ 0.42 (12)	nd	nd
2001	2.3 (1)	1.92 (1)	2.1 $\pm$ 0.14 (3)	2.18 $\pm$ 0.41 (8)	ns	nd
2002	nd	nd	5.35 (1)	2.21 (1)	ns	ns

Table 26. Mean weight (g), $\pm$ SD, of age 1+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Lower Reach			Gorge Reach		
	LBRU	LF	LP	LRI	LRU	GRU
1990	6.35 $\pm$ 4.17 (6)	nd	ns	nd	nd	5.34 $\pm$ 4.92 (10)
1991	4.09 $\pm$ 2.07 (7)	3.67 $\pm$ 1.08 (25)	ns	4.05 $\pm$ 1.16 (64)	3.91 $\pm$ 1.1 (59)	5.36 $\pm$ 1.46 (21)
1992	3.88 $\pm$ 1.02 (33)	3.41 $\pm$ 0.8 (39)	ns	3.69 $\pm$ 0.61 (89)	3.64 $\pm$ 0.77 (56)	4.93 $\pm$ 3.6 (49)
1993	3.57 $\pm$ 1.03 (29)	3.73 $\pm$ 1.18 (27)	4.01 $\pm$ 1.9 (5)	3.79 $\pm$ 0.78 (66)	3.67 $\pm$ 0.91 (48)	3.63 $\pm$ 0.97 (43)
1994	3.88 $\pm$ 1.07 (20)	3.57 $\pm$ 0.91 (21)	3.3 $\pm$ 0.78 (8)	3.95 $\pm$ 1.01 (59)	3.84 $\pm$ 1.02 (40)	4.8 $\pm$ 0.96 (46)
1995	4.56 $\pm$ 1.4 (46)	3.89 $\pm$ 1.15 (25)	4.45 $\pm$ 1.2 (26)	4.28 $\pm$ 1.24 (107)	4.05 $\pm$ 1.14 (59)	5.04 $\pm$ 1.24 (44)
1996	4.59 $\pm$ 1.47 (9)	4.49 (2)	nd	4.1 $\pm$ 0.92 (21)	4.04 $\pm$ 0.59 (6)	7.85 $\pm$ 1.85 (4)
1997	6.27 $\pm$ 1.76 (23)	6.23 $\pm$ 1.37 (32)	6 $\pm$ 1.31 (14)	6.02 $\pm$ 1.27 (45)	6.43 $\pm$ 1.44 (35)	5.43 $\pm$ 1.52 (49)
1998	5.28 $\pm$ 1.57 (15)	4.82 $\pm$ 1.18 (25)	ns	5.03 $\pm$ 1.35 (37)	5.17 $\pm$ 1.62 (38)	3.72 $\pm$ 1.03 (29)
1999	6.29 $\pm$ 1.71 (17)	5.63 $\pm$ 1.48 (8)	5.86 $\pm$ 1.77 (24)	5.68 $\pm$ 1.29 (62)	5.52 $\pm$ 1.52 (41)	4.41 $\pm$ 1.46 (45)
2000	5.08 $\pm$ 2.28 (14)	4.54 $\pm$ 1.45 (12)	5.23 $\pm$ 1.37 (14)	4.35 $\pm$ 1.39 (56)	4.99 $\pm$ 1.49 (13)	5.8 $\pm$ 2.38 (9)
2001	5.45 $\pm$ 2.04 (20)	4.05 $\pm$ 1.39 (25)	ns	4.71 $\pm$ 1.3 (94)	4.5 $\pm$ 1.65 (39)	5.07 $\pm$ 1.74 (52)
2002	6.25 $\pm$ 2.05 (7)	nd	ns	5.78 $\pm$ 2.35 (28)	7.09 $\pm$ 2.96 (8)	6.27 $\pm$ 2.4 (17)
						5.3 $\pm$ 1.49 (7)
						5.03 $\pm$ 1.07 (36)
						5.01 $\pm$ 1.07 (66)
						3.68 $\pm$ 0.95 (49)
						3.25 $\pm$ 0.88 (18)
						4.7 $\pm$ 0.87 (51)
						4.93 $\pm$ 1.37 (92)
						7.34 $\pm$ 1.1 (7)
						5.75 $\pm$ 1.72 (35)
						4.94 $\pm$ 1.13 (31)
						4.82 $\pm$ 1.21 (30)
						5.59 $\pm$ 1.28 (17)
						5.18 $\pm$ 1.37 (56)
						6.66 $\pm$ 1.68 (27)

Table 26 (con't). Mean weight (g), $\pm$ SD, of age 1+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Middle Reach			Upper Reach	
	MF	MP	MRU	UP	URU
1990	4.72 $\pm$ 1.4 (48)	ns	4.82 $\pm$ 1.58 (52)	ns	5.39 $\pm$ 1.13 (5)
1991	5.8 $\pm$ 0.45 (3)	ns	5.81 $\pm$ 5.05 (20)	ns	nd
1992	5.65 $\pm$ 2.65 (10)	ns	4.74 $\pm$ 1.31 (74)	ns	6.98 $\pm$ 2.61 (5)
1993	3.75 $\pm$ 0.82 (15)	3.95 $\pm$ 0.46 (11)	4.15 $\pm$ 0.68 (30)	ns	5.15 $\pm$ 1.34 (4)
1994	5.67 $\pm$ 0.93 (7)	4.96 $\pm$ 1.14 (19)	5.13 $\pm$ 1.16 (26)	nd	nd
1995	6.33 $\pm$ 1.43 (9)	6.45 $\pm$ 1.17 (20)	6.38 $\pm$ 1.1 (18)	nd	nd
1996	nd	nd	4.47 (2)	nd	nd
1997	6.51 (2)	7.21 (2)	8.85 $\pm$ 2.18 (6)	nd	nd
1998	5.26 $\pm$ 1.43 (19)	5.77 $\pm$ 1.47 (14)	5.44 $\pm$ 1.29 (26)	nd	nd
1999	nd	6.85 (2)	6.23 (2)	nd	nd
2000	6.07 $\pm$ 1.31 (7)	5.59 $\pm$ 2.11 (15)	6.19 $\pm$ 1.82 (20)	nd	nd
2001	5.72 $\pm$ 1.06 (5)	6.25 $\pm$ 1.58 (8)	6.08 $\pm$ 1.19 (20)	nd	nd
2002	5.32 $\pm$ 1.13 (2)	5.85 $\pm$ 2.09 (17)	5.72 $\pm$ 1.1 (20)	nd	nd

Table 27: Mean weight (g), $\pm$ SD, of age 1+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Lower Reach					Gorge Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU
1990	7.51 +/- 1.7 (11)	6.03 +/- 1.28 (15)	ns	7.02 +/- 1.94 (16)	6.99 +/- 2.99 (18)	ns	ns	ns
1991	5.4 +/- 1.8 (29)	5.63 +/- 1.09 (36)	ns	4.84 +/- 1.59 (43)	5.25 +/- 1.71 (51)	ns	ns	ns
1992	5.72 +/- 1.26 (7)	4.43 +/- 1.18 (25)	ns	5.83 +/- 2.02 (19)	5.43 +/- 1.28 (27)	ns	ns	ns
1993	4.47 +/- 0.85 (12)	5.11 +/- 0.74 (12)	ns	4.84 +/- 0.96 (38)	5.19 +/- 1.19 (24)	ns	ns	4.84 +/- 0.96 (27)
1994	4.45 +/- 0.9 (27)	4.86 +/- 1.37 (20)	nd	5.04 +/- 0.98 (52)	5.26 +/- 1.1 (24)	4.88 +/- 1.25 (46)	5.46 +/- 1.4 (37)	5.33 +/- 1.66 (37)
1995	ns	ns	ns	5.36 +/- 0.96 (18)	5.12 +/- 0.87 (12)	5.65 +/- 1.28 (55)	6.0 +/- 1.43 (36)	5.26 +/- 1.33 (26)
1996	6.37 +/- 0.49 (4)	nd	ns	5.71 +/- 0.96 (7)	7.34 +/- 1.21 (10)	7.26 +/- 1.84 (10)	8.2 +/- 2.67 (7)	9.0 +/- 1.87 (7)
1997	7.93 +/- 1.56 (26)	6.81 +/- 1.94 (21)	7.29 +/- 1.46 (20)	7.0 +/- 1.56 (27)	7.73 +/- 1.79 (26)	5.73 +/- 1.62 (61)	6.41 +/- 1.7 (42)	6.45 +/- 2.16 (29)
1998	6.06 +/- 1.01 (12)	5.86 +/- 1.24 (14)	ns	6.73 +/- 2.47 (15)	6.39 +/- 1.49 (32)	5.46 +/- 1.07 (44)	5.54 +/- 1.53 (36)	6.04 +/- 1.7 (58)
1999	5.79 +/- 2.28 (7)	5.1 +/- 2.16 (13)	6.43 +/- 1.42 (4)	5.56 +/- 1.32 (29)	5.61 +/- 1.95 (22)	5.01 +/- 0.93 (13)	4.67 +/- 1.11 (17)	4.99 +/- 0.91 (17)
2000	5.26 +/- 1.06 (8)	5.92 +/- 1.26 (10)	ns	4.94 +/- 1.2 (19)	5.74 +/- 0.88 (19)	5.9 +/- 0.96 (16)	5.61 +/- 0.85 (19)	5.27 +/- 1.11 (19)
2001	5.86 +/- 1.52 (25)	5.28 +/- 0.86 (26)	6.14 +/- 1.25 (17)	5.95 +/- 1.39 (57)	5.46 +/- 1.06 (35)	5.32 +/- 1.46 (27)	5.69 +/- 1.49 (41)	5.31 +/- 1.75 (44)
2002	9.94 +/- 0.01 (4)	7.08 +/- 7.04 (12)	ns	6.96 +/- 4.44 (10)	8.55 +/- 5.04 (20)	5.65 +/- 1.34 (5)	6.48 +/- 1.25 (16)	5.61 +/- 4.54 (29)

Table 27 (con't): Mean weight (g), +/- SD, of age 1+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Middle Reach			Upper Reach		
	MF	MP	MRI	MRU	UP	URU
1990	6.03 +/- 2.62 (36)	ns	5.49 +/- 1.68 (43)	5.61 +/- 1.53 (34)	ns	6.9 +/- 1.43 (9)
1991	5.87 +/- 1.04 (18)	ns	6.0 +/- 1.2 (6)	6.57 +/- 3.61 (9)	ns	6.02 +/- 0.67 (2)
1992	6.14 +/- 1.02 (50)	6.74 +/- 2.77 (48)	6.13 +/- 3.08 (32)	6.65 +/- 2.52 (34)	ns	6.09 +/- 0.58 (9)
1993	5.53 +/- 0.95 (21)	5.83 +/- 1.5 (11)	6.21 +/- 1.14 (15)	5.99 +/- 1.77 (28)	ns	7.34 (3)
1994	6.61 +/- 1.29 (24)	6.43 +/- 1.22 (30)	6.74 +/- 1.3 (15)	6.76 +/- 1.34 (20)	nd	nd
1995	7.22 +/- 1.43 (10)	7.65 +/- 0.47 (7)	6.75 +/- 1.6 (16)	7.11 +/- 0.97 (29)	nd	nd
1996	8.51 +/- 0.25 (2)	nd	7.72 (3)	9.17 (1)	ns	nd
1997	6.94 (1)	9.67 +/- 2.32 (5)	9.69 +/- 1.24 (6)	9.15 (4)	ns	ns
1998	7.02 +/- 1.27 (6)	6.96 +/- 1.73 (14)	6.27 +/- 1.64 (20)	6.19 +/- 1.46 (28)	nd	7.04 (1)
1999	8.2 (1)	6.35 +/- 0.45 (2)	nd	7.01 +/- 1.95 (8)	ns	nd
2000	6.09 +/- 0.5 (6)	ns	6.91 +/- 1.87 (20)	7.39 +/- 1.27 (15)	nd	nd
2001	5.62 +/- 1.2 (10)	5.84 +/- 2.13 (21)	5.17 +/- 1.36 (18)	5.79 +/- 1.42 (38)	ns	nd
2002	6.2 +/- 0.36 (3)	5.74 +/- 2.22 (10)	5.98 +/- 1.98 (11)	5.81 +/- 1.33 (24)	ns	ns

Table 28. Mean weight (g), $\pm$ SD, of age 2+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Lower Reach				Gorge Reach			
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU
1990	15.8 (1)	nd	ns	nd	nd	14.77 +/- 6.52 (4)	13.65 (1)	nd
1991	10.72 +/- 8.95 (5)	8.2 +/- 1.2 (2)	ns	13.97 +/- 11.86 (16)	13.38 +/- 8.76 (26)	15.21 +/- 8.37 (9)	15.75 +/- 13.65 (23)	14.19 +/- 4.86 (13)
1992	10.94 +/- 10.78 (16)	8.5 +/- 0.07 (4)	ns	10.86 +/- 8.09 (31)	10.36 +/- 6.5 (11)	13.51 +/- 18.15 (9)	13.73 +/- 8.36 (29)	13.6 +/- 11.59 (7)
1993	12.47 +/- 11.11 (10)	11.43 (4)	8.99 (2)	10.98 +/- 12.72 (21)	11.88 +/- 12.68 (17)	12.16 +/- 6.33 (16)	11.36 +/- 12.76 (33)	9.27 (2)
1994	10.91 (2)	10.63 +/- 2 (10)	10.69 +/- 2.62 (6)	10.42 +/- 3.3 (38)	11.12 +/- 2.98 (17)	12.32 +/- 3.06 (10)	12.53 +/- 2.87 (35)	12.55 +/- 3.17 (11)
1995	13.76 +/- 4.54 (9)	9.56 (3)	13.33 +/- 3.22 (10)	12.38 +/- 3.34 (22)	12.96 +/- 3.31 (13)	11.46 (3)	15.7 +/- 5.15 (16)	13.84 +/- 1.86 (6)
1996	11.46 +/- 2.41 (8)	9.17 +/- 1.25 (5)	12.82 +/- 3.31 (5)	11.61 +/- 2.65 (13)	10.29 +/- 2.52 (4)	nd	18.4 +/- 2.75 (15)	19.94 +/- 6.28 (12)
1997	15.13 (3)	13 (2)	13.52 (1)	13.9 (2)	16.39 +/- 4.69 (3)	18.08 +/- 5.08 (3)	16.4 +/- 1.8 (7)	nd
1998	11.5 (3)	11.92 +/- 3.17 (5)	ns	12.96 +/- 2.54 (17)	14.55 +/- 2.63 (20)	9.95 +/- 1.37 (4)	16.81 +/- 3.03 (11)	16.3 +/- 3.4 (11)
1999	13.2 +/- 2.6 (6)	14.08 +/- 2.61 (7)	13.56 +/- 1.78 (10)	13.48 +/- 3.05 (13)	13.26 +/- 2.21 (13)	11.11 +/- 3.09 (21)	12.37 +/- 4.54 (31)	13.77 +/- 3.77 (8)
2000	13.7 +/- 3.87 (4)	14.73 (1)	14.97 +/- 3.37 (5)	11.75 +/- 1.47 (8)	12.56 (4)	12.32 +/- 3.84 (3)	19.23 +/- 8.13 (4)	12.15 +/- 2.93 (4)
2001	12.17 +/- 1.35 (4)	12.4 (2)	ns	12.92 +/- 3.3 (13)	12.87 +/- 2.28 (6)	13.85 +/- 4.55 (4)	13.33 +/- 1.68 (12)	14.16 (4)
2002	16.46 +/- 73.35 (10)	6.13 +/- 8.66 (2)	ns	13.02 +/- 7.24 (18)	13.85 +/- 3.85 (11)	14.61 +/- 6.49 (10)	14.76 +/- 4.09 (22)	13.69 +/- 6.66 (7)

Table 28 (con't). Mean weight (g), +/- SD, of age 2+ Atlantic salmon during summer sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Middle Reach				Upper Reach	
	MIF	MP	MRI	MRU	UP	URU
1990	nd	ns	14.31 (4)	14.22 (4)	ns	11.8 (2)
1991	12.42 +/- 10.23 (5)	ns	12.74 +/- 8.74 (16)	12.55 +/- 7.77 (8)	ns	17.6 +/- 2.47 (2)
1992	17 (1)	ns	22.03 (3)	20.52 (2)	ns	12.75 +/- 5.79 (5)
1993	11.62 +/- 7.43 (11)	11.05 +/- 4.12 (6)	12.25 +/- 5.49 (11)	12.25 +/- 13.21 (18)	ns	14.01 +/- 3.83 (17)
1994	12.03 (2)	12.45 +/- 2.48 (5)	12.3 +/- 1.67 (8)	11.13 +/- 1.7 (7)	nd	24.42 (4)
1995	14.09 +/- 1.96 (5)	14.74 +/- 3.26 (19)	15.02 +/- 2.77 (11)	15.82 +/- 3.02 (11)	nd	nd
1996	14.57 +/- 2.37 (2)	18.98 +/- 4.99 (5)	17.72 +/- 4.34 (7)	14.59 +/- 4.84 (5)	15.66 +/- 4.64 (3)	15.5 (1)
1997	nd	23.18 (2)	nd	18.08 (1)	nd	nd
1998	16.45 (2)	14.84 +/- 4.91 (5)	18.72 +/- 1.37 (4)	15.96 +/- 3.53 (9)	nd	16.3 (1)
1999	14.51 (3)	15.09 +/- 3.1 (12)	16.67 +/- 3.04 (12)	15.58 +/- 3.3 (13)	nd	19.38 (1)
2000	nd	12.41 (2)	18.22 (1)	18.55 (2)	nd	nd
2001	12.03 (3)	13.36 +/- 3.2 (5)	14.89 +/- 3.03 (10)	14.31 +/- 3.02 (10)	nd	nd
2002	19.39 +/- 6.7 (2)	13.14 +/- 7.66 (10)	14.27 +/- 11.74 (14)	13.47 +/- 12.01 (14)	nd	nd

Table 29: Mean weight (g), $\pm$ SD, of age 2+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Lower Reach				Gorge Reach			
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU
1990	17.25 +/- 6.35 (5)	8.5 (2)	ns	17.3 (1)	16.63 +/- 22.15 (6)	ns	ns	ns
1991	13.84 +/- 18.57 (9)	14.24 +/- 2.48 (5)	ns	15.94 +/- 10.71 (7)	18.34 +/- 18.04 (25)	ns	ns	ns
1992	11.62 +/- 9.46 (7)	13.09 +/- 4.33 (5)	ns	15.37 +/- 10.15 (13)	14.45 +/- 15.07 (14)	ns	ns	ns
1993	11.73 +/- 13.36 (6)	12.76 +/- 2.39 (8)	ns	12.08 +/- 9.83 (6)	15.82 +/- 30.9 (15)	ns	ns	11.35 (4)
1994	12.02 +/- 4.75 (13)	11.01 +/- 2.59 (11)	nd	13.08 +/- 3.8 (19)	13.43 +/- 3.99 (30)	14.24 +/- 3.34 (9)	14.16 +/- 2.07 (15)	12.07 +/- 4.11 (14)
1995	ns	ns	ns	14.62 +/- 1.92 (6)	13.28 +/- 2.75 (15)	14.53 +/- 2.77 (23)	18.79 (4)	15.08 +/- 3.64 (13)
1996	17.19 +/- 4.02 (11)	13.68 +/- 4.71 (7)	ns	16.99 +/- 4.72 (10)	17.59 +/- 3.54 (16)	19.04 +/- 4.35 (9)	21.01 +/- 3.69 (6)	17.54 +/- 3.54 (14)
1997	16.58 (4)	15.39 +/- 0.36 (2)	11.35 +/- 5.74 (6)	14.23 +/- 4.05 (3)	15.49 +/- 2.73 (7)	15.78 +/- 5.97 (3)	15.06 +/- 2.96 (5)	11.05 (1)
1998	13.66 +/- 4.51 (5)	14.36 (3)	ns	19.27 +/- 7.91 (4)	15.06 +/- 3.03 (18)	15.65 +/- 3.74 (7)	17.51 +/- 1.71 (6)	18.1 +/- 3.98 (13)
1999	13.7 +/- 2.95 (6)	13.84 (2)	12.8 +/- 7.16 (5)	14.59 +/- 3.27 (7)	13.7 +/- 2.2 (16)	12.2 (4)	15.35 +/- 6.87 (7)	13.15 (2)
2000	13.05 +/- 5.94 (8)	10.99 +/- 1.7 (4)	ns	14.11 +/- 6.52 (19)	17.59 +/- 7.07 (15)	13.52 +/- 1.98 (5)	17.04 +/- 7.19 (9)	14.14 +/- 3.96 (4)
2001	13.57 +/- 3.56 (11)	12.19 (3)	11.96 +/- 0.6 (3)	13.5 +/- 2.81 (21)	12.25 +/- 2.63 (10)	11.65 +/- 1.3 (4)	15.88 +/- 2.75 (8)	16.38 +/- 6.15 (3)
2002	16.32 +/- 11.92 (9)	14.65 +/- 3.24 (4)	ns	15.23 +/- 3.12 (14)	16.91 +/- 13.37 (14)	11.54 +/- 3.33 (3)	13.14 +/- 18.51 (12)	11.47 +/- 6.41 (10)

Table 29 (con't): Mean weight (g), +/- SD, of age 2+ Atlantic salmon during autumn sampling in the four reaches of Catamaran Brook, 1990-2002. Bracketed numbers refer to sample size. ns = not sampled; nd = no weight data.

	Middle Reach			Upper Reach	
	MF	MP	MRI	MRU	URU
1990	13.52 +/- 7.41 (7)	ns	16.51 +/- 37.4 (8)	14.6 +/- 22.35 (4)	ns
1991	12.01 +/- 10.63 (9)	ns	14.93 +/- 14.06 (5)	15.16 +/- 12.15 (12)	14.6 (2)
1992	nd	14.16 +/- 57.98 (4)	nd	13.5 +/- 16.73 (5)	16.9 +/- 7.28 (2)
1993	12.59 +/- 7.56 (6)	14.11 +/- 22.52 (6)	12.85 +/- 18.46 (12)	13.59 +/- 13.79 (18)	17.18 (4)
1994	14.85 (1)	15.26 +/- 3.09 (6)	14.59 +/- 3.64 (3)	13.07 (2)	22.98 (4)
1995	13.72 +/- 4.5 (8)	14.39 +/- 4.12 (11)	14 +/- 3.48 (7)	15.35 +/- 3.45 (10)	nd
1996	17.34 (1)	21.7 (1)	22.19 (3)	17.68 +/- 3.48 (5)	nd
1997	16.79 (1)	17.64 +/- 5.2 (5)	15.78 (2)	nd	ns
1998	11.93 (1)	12.63 +/- 2.83 (5)	16.5 +/- 3.86 (6)	15.47 +/- 6.88 (3)	nd
1999	15.9 (1)	10.34 +/- 6.21 (4)	16.61 +/- 4.3 (6)	16.29 +/- 3.69 (5)	nd
2000	nd	ns	13.16 +/- 2.55 (3)	17.47 +/- 2.17 (4)	nd
2001	10.7 (1)	14.04 +/- 1.31 (6)	15.56 (4)	13.47 +/- 2.01 (6)	nd
2002	nd	17.12 +/- 5.31 (4)	12.86 (1)	14.47 +/- 4.53 (5)	ns

Table 30: Mean weight (g) of individual age salmon (0+, 1+, 2+) for all sites within a reach combined during summer sampling in Catamaran Brook, 1990-2002.
ns = not sampled; nd = weight data not collected.

	Age 0+				Age 1+			
	Lower	Gorge	Middle	Upper	Lower	Gorge	Middle	Upper
1990	0.63	0.44	0.50	ns	6.36	5.32	4.72	5.39
1991	0.38	0.52	0.74	ns	3.93	5.16	5.74	nd
1992	0.34	0.55	0.53	ns	3.66	5.00	5.13	6.98
1993	0.40	0.34	0.31	ns	3.76	3.53	4.03	5.15
1994	0.33	0.47	0.85	nd	3.71	4.64	5.30	nd
1995	0.36	0.51	nd	nd	4.25	5.01	6.39	nd
1996	0.41	0.70	0.76	nd	4.31	7.34	4.70	nd
1997	0.70	0.47	nd	nd	6.20	5.70	7.24	nd
1998	0.87	0.50	nd	nd	5.08	4.62	5.44	nd
1999	0.89	0.27	0.76	nd	5.80	4.52	6.39	nd
2000	0.39	0.86	1.04	nd	4.84	6.05	6.24	nd
2001	0.42	1.10	nd	nd	4.68	5.36	6.04	nd
2002	0.24	1.10	nd	nd	6.38	6.56	5.73	nd

Age 2+				
	Lower	Gorge	Middle	Upper
1990	15.80	14.21	14.27	11.80
1991	11.57	15.05	12.57	17.60
1992	10.17	13.62	19.85	12.75
1993	11.16	10.93	11.80	14.02
1994	10.76	12.47	11.98	24.42
1995	12.40	13.67	14.92	nd
1996	11.07	19.17	16.47	15.58
1997	14.39	17.25	20.63	nd
1998	12.73	14.36	16.50	16.30
1999	13.52	12.42	15.47	19.38
2000	13.54	14.57	16.40	nd
2001	12.59	13.78	13.65	nd
2002	12.37	14.36	15.07	nd

Table 31: Mean weight (g) of individual age salmon (0+, 1+, 2+) for all sites within a reach combined during autumn sampling in Catamaran Brook, 1990-2002.
ns = not sampled; nd = weight data not collected.

	Age 0+			Age 1+				
	Lower	Gorge	Middle	Upper	Lower	Gorge	Middle	Upper
1990	1.69	ns	2.32	nd	6.89	ns	5.71	6.91
1991	1.13	ns	1.55	2.37	5.29	ns	6.15	6.03
1992	1.26	ns	1.60	nd	5.36	ns	6.42	6.09
1993	1.33	1.25	1.66	nd	4.90	4.84	5.90	7.35
1994	1.41	1.42	2.09	nd	4.90	5.23	6.64	nd
1995	1.94	1.95	nd	nd	5.24	5.64	7.19	nd
1996	2.17	1.81	3.19	nd	6.47	8.16	8.47	nd
1997	2.42	1.28	nd	ns	7.36	6.20	8.86	ns
1998	2.01	1.76	nd	nd	6.27	5.68	6.61	7.04
1999	1.70	1.11	2.50	nd	5.70	4.90	7.19	nd
2000	1.66	1.49	2.54	nd	5.47	5.60	6.80	nd
2001	2.30	1.96	2.13	nd	5.74	5.45	5.61	nd
2002	1.65	2.42	3.78	ns	8.14	5.92	5.94	ns

Age 2+				
1990	14.92	ns	14.88	nd
1991	15.59	ns	14.04	14.60
1992	13.64	ns	13.83	16.90
1993	13.10	11.36	13.29	17.19
1994	12.39	13.50	14.44	22.99
1995	13.96	16.14	14.37	nd
1996	16.37	19.20	19.73	nd
1997	14.61	13.97	16.74	ns
1998	15.59	17.09	14.14	nd
1999	13.73	13.57	14.79	nd
2000	13.94	14.90	15.32	nd
2001	12.70	14.64	13.45	nd
2002	15.78	12.06	14.82	ns

Table 32: Estimates of biomass (g/100m²) of age 0+ Atlantic salmon during summer sampling of Catamaran Brook, 1990-2002. Derived by multiplying mean weight and mean density from corresponding tables previously presented. ns = not sampled; nd = not sufficient data to calculate biomass (i.e., numbers or weight data missing).

data missing).	Lower Reach					Gorge Reach			Middle Reach			Upper Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	16.20	nd	ns	nd	nd	37.55	24.67	nd	0.77	ns	nd	nd	ns	nd
1991	15.69	38.72	ns	49.82	90.24	60.18	122.12	80.77	12.73	ns	87.55	81.50	ns	nd
1992	26.28	32.01	ns	23.92	43.22	50.63	59.76	92.39	15.55	ns	14.22	29.87	ns	nd
1993	20.06	33.69	10.17	16.63	47.65	38.54	34.43	39.94	4.71	14.80	8.87	20.57	ns	nd
1994	8.61	84.76	35.62	60.26	97.09	56.36	93.77	81.31	4.89	7.24	13.21	8.46	nd	nd
1995	16.59	19.41	nd	66.06	41.41	1.73	1.95	13.91	nd	nd	nd	nd	nd	nd
1996	8.18	5.85	0.42	15.94	8.45	32.24	38.37	56.77	0.58	0.26	1.09	1.02	nd	nd
1997	1.62	11.72	ns	6.10	15.48	59.64	49.78	91.54	nd	nd	nd	nd	nd	nd
1998	11.13	19.75	ns	18.76	26.18	15.98	31.01	27.53	nd	nd	nd	nd	nd	nd
1999	13.43	10.03	13.96	55.53	24.55	48.38	59.16	55.44	1.96	2.45	8.68	5.74	nd	nd
2000	30.46	17.52	15.58	22.21	27.01	82.23	78.49	149.26	nd	nd	1.10	nd	nd	nd
2001	0.18	1.61	ns	5.22	nd	20.29	14.13	30.68	nd	nd	nd	nd	nd	nd
2002	nd	nd	ns	8.88	nd	15.24	15.0	26.28	nd	nd	nd	nd	nd	nd

Table 33: Estimates of biomass (g/100m²) of age 0+ Atlantic salmon during autumn sampling of Catamaran Brook, 1990-2002. Derived by multiplying mean weight and mean density from corresponding tables previously presented. ns = not sampled; nd = not sufficient data to calculate biomass (i.e., numbers or weight data missing).

	Lower Reach					Gorge Reach			Middle Reach				Upper Reach	
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	59.68	101.86	ns	48.55	93.73	ns	ns	ns	5.16	ns	5.60	3.04	ns	nd
1991	40.59	91.28	ns	42.37	94.01	ns	ns	ns	87.27	ns	80.90	112.07	ns	7.63
1992	89.68	85.04	ns	34.90	127.96	ns	ns	ns	59.89	84.09	40.37	73.79	ns	nd
1993	60.72	48.60	ns	48.61	70.15	ns	ns	51.05	48.24	64.18	53.43	59.23	ns	nd
1994	193.87	125.73	nd	150.69	170.16	113.68	99.93	128.64	27.67	19.71	52.55	52.15	nd	nd
1995	ns	ns	ns	19.19	7.49	11.07	6.66	21.99	nd	nd	nd	nd	nd	nd
1996	39.47	36.58	ns	52.13	42.19	95.30	84.65	101.35	nd	nd	4.08	5.35	ns	nd
1997	33.13	26.52	33.88	32.52	34.40	137.18	122.77	145.36	nd	nd	nd	nd	ns	ns
1998	37.10	30.63	ns	31.27	50.74	96.21	50.30	88.43	nd	nd	nd	nd	nd	nd
1999	31.20	24.97	19.60	51.35	45.40	49.00	38.23	23.37	4.98	33.22	31.14	19.21	ns	nd
2000	65.38	38.80	ns	154.32	95.44	101.89	118.45	104.75	1.09	ns	11.45	23.85	nd	nd
2001	10.17	12.92	9.58	25.50	52.06	37.18	31.11	58.65	1.32	1.00	4.09	6.30	ns	nd
2002	18.68	2.3	ns	3.3	nd	25.03	33.6	32.04	nd	nd	4.14	nd	ns	ns

Table 34: Estimates of biomass ($g/100m^2$) of age 1+ Atlantic salmon during summer sampling of Catamaran Brook, 1990-2002. Derived by multiplying mean weight and mean density from corresponding tables previously presented. ns = not sampled; nd = not sufficient data to calculate biomass (i.e., numbers or weight data missing).

	Lower Reach				Gorge Reach			Middle Reach			Upper Reach			
	LBRU	LF	LP	LRI	LRI	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	63	nd	ns	nd	nd	53	81	nd	116	ns	192	172	ns	23
1991	75	47	ns	162	160	66	177	68	15	ns	87	40.21	ns	nd
1992	81	40	ns	163	102	99	210	62	50	ns	203	87.15	ns	14.61
1993	69.02	36.05	18.25	121.02	86.67	75.32	110.62	57.58	23.89	28.50	92.46	93.97	ns	7.95
1994	58.70	30.43	32.93	112.80	78.59	85.47	304.16	63.10	20.63	58.77	119.70	79.00	nd	nd
1995	151.92	22.33	99.65	149.48	160.45	105.92	195.85	193.33	25.60	87.49	70.52	115.35	nd	nd
1996	24.36	2.98	nd	32.44	15.74	15.01	41.98	28.70	nd	nd	4.67	13.85	nd	nd
1997	80	60	ns	99	102	72	258	122	6	7	23	35.66	nd	nd
1998	43	37	ns	72	72	83	206	86	43	41	94	59.73	nd	nd
1999	56	18	71	133	86	107	242	115	nd	7	10	25.25	nd	nd
2000	52.02	19.71	47.02	89.84	43.97	43.25	159.74	47.93	89.86	41.57	163.93	96.54	nd	nd
2001	57.38	28.51	ns	102.84	nd	150.79	178.11	109.76	15.85	51.90	54.55	95.99	nd	nd
2002	nd	nd	ns	52.53	30.57	48.12	262.34	105.73	15.9	71.17	60.28	90.09	nd	nd

Table 35: Estimates of biomass ($g/100m^2$) of age 1+ Atlantic salmon during autumn of Catamaran Brook, 1990-2002. Derived by multiplying mean weight and mean density from corresponding tables previously presented. ns = not sampled; nd = not sufficient data to calculate biomass (i.e., numbers or weight data missing).

	Lower Reach				Gorge Reach				Middle Reach			Upper Reach		
	LBRU	LF	LP	LRI	LRI	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	55	42	ns	63	69	ns	ns	ns	86	ns	158	132	ns	34
1991	94	67	ns	104	118	ns	ns	ns	39	ns	19	48	ns	4
1992	117	65	ns	122	175	ns	ns	ns	127	220	124	184	ns	52
1993	62.44	20.89	ns	85.02	70.28	ns	ns	57.37	49.96	76.04	64.37	73.85	ns	10.22
1994	85.56	39.07	nd	118.61	64.50	95.47	124.02	108.70	76.94	112.03	125.16	168.60	nd	nd
1995	ns	ns	ns	84.21	44.96	157.84	121.93	93.83	30.10	30.03	64.38	108.36	nd	nd
1996	12.94	nd	ns	11.31	34.57	27.99	29.08	29.04	13.07	nd	15.62	14.63	ns	nd
1997	142	83	147	88	91	117.57	162.54	127	7	30	32	32	ns	ns
1998	35	25	ns	71	55	97.36	90.43	98	41	98	70	82	nd	12
1999	31	28	26	56	49	32.82	47.06	41	4	19	nd	24	ns	nd
2000	23.78	15.32	ns	49.98	52.92	55.30	86.42	48.65	19.40	ns	80.84	84.88	nd	nd
2001	75.06	42.69	83.13	121.58	136.44	73.48	173.25	106.72	32.38	64.15	60.49	79.41	ns	nd
2002	23.77	24.62	ns	70.89	26.91	37.98	91.18	68.35	55.67	51.8	111.29	nd	ns	ns

Table 36: Estimates of biomass ($g/100m^2$) of age 2+ Atlantic salmon during summer sampling of Catamaran Brook, 1990-2002. Derived by multiplying mean weight and mean density from corresponding tables previously presented. ns = not sampled; nd = not sufficient data to calculate biomass (i.e., numbers or weight data missing).

	Lower Reach				Gorge Reach			Middle Reach			Upper Reach	
	LBRU	LF	LP	LRI	LRI	GBRU	GRI	GRU	MF	MP	MRU	UP
1990	78.06	nd	ns	nd	nd	45.96	65.33	nd	nd	ns	43.78	ns
1991	77.18	8.56	ns	139.42	241.17	69.69	353.56	137.12	51.82	ns	153.15	ns
1992	110.70	10.34	ns	166.87	57.07	53.36	252.54	48.49	14.93	ns	38.15	ns
1993	88	19	16	110	99	92	230	18	54	43	100	ns
1994	16	43	80	191	95	48	525	73	19	47	74	nd
1995	88	7	115	89	113	16	207	35	32	181	101	nd
1996	53.97	15.21	64.04	56.86	26.73	nd	150.71	133.65	23.58	45.78	64.84	56.72
1997	25.26	7.76	ns	9.51	21.57	13.25	66.79	nd	nd	21.84	nd	nd
1998	18.80	18.09	ns	81.21	103.68	37.43	177.78	70.43	13.99	37.57	49.75	nd
1999	41.57	39.90	68.09	66.28	63.96	120.95	305.19	82.02	25.81	98.73	153.15	35.20
2000	40	5	54	49	26	25	139	27	nd	12	19	nd
2001	24	6	ns	39	nd	37	109	21	20	69	67	nd
2002	nd	2.34	ns	76.0	82.15	65.94	468.34	46.12	57.96	94.0	105.26	nd

Table 37: Estimates of biomass ($g/100m^2$) of age 2+ Atlantic salmon during autumn sampling of Catamaran Brook, 1990-2002. Derived by multiplying mean weight and mean density from corresponding tables previously presented. ns = not sampled; nd = not sufficient data to calculate biomass (i.e., numbers or weight data missing).

	Lower Reach				Gorge Reach			Middle Reach			Upper Reach	
	LBRU	LF	LP	LRI	LRI	GBRU	GRI	GRU	MF	MP	MRU	UP
1990	57.65	3.91	ns	9.65	52.16	ns	ns	ns	37.47	ns	86.54	ns
1991	72.09	20.03	ns	55.43	201.75	ns	ns	ns	39.59	ns	39.89	ns
1992	139.94	34.27	ns	237.01	241.07	ns	ns	ns	nd	38.43	nd	ns
1993	82	35	ns	33	134	ns	ns	20	32	87	106	ns
1994	107	42	nd	112	206	54.42	130.25	91	7	53	56	ns
1995	ns	ns	ns	77	146	169.57	42.40	134	46	89	58	nd
1996	96.07	51.29	ns	48.06	132.53	66.10	63.83	113.20	13.32	17.54	44.90	ns
1997	45.56	17.91	80.17	19.95	45.71	15.93	45.43	7.04	16.27	55.15	17.51	ns
1998	32.45	13.10	ns	54.26	73.03	44.36	47.62	66.04	11.49	59.03	22.04	nd
1999	63.80	10.73	78.09	35.54	87.32	24.57	63.70	12.84	7.53	47.47	60.28	ns
2000	59	11	ns	143	128	39.56	124.19	27	nd	ns	23	nd
2001	77	11	29	102	87	23.80	94.59	22	6	44	40	ns
2002	87.79	16.97	ns	108.95	nd	46.54	138.72	48.3	nd	14.04	49.82	ns

Table 38: Estimates of biomass (g/100m³) of total Atlantic salmon (all age classes combined) during summer sampling of Catamaran Brook, 1990-2002. ns = not sampled; nd = not sufficient data to calculate biomass (i.e., numbers or weight data missing). * = estimate based on only one age class.

	Lower Reach				Gorge Reach				Middle Reach				Upper Reach	
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	157.07	nd	ns	nd	nd	136.12	171.27	nd	117.23	ns	235.52	214.91	ns	42.64
1991	167.87	94.51	ns	351.14	491.62	195.38	652.58	285.89	79.07	ns	328.01	241.90	ns	96.15
1992	218.14	82.81	ns	353.72	202.53	203.35	522.04	202.48	80.11	ns	255.18	140.19	ns	41.29
1993	177.35	88.76	44.77	247.49	233.65	205.58	374.59	115.26	82.84	86.69	201.48	234.16	ns	99.96
1994	83.80	158.25	148.57	364.35	270.88	189.49	922.93	217.69	44.27	112.52	206.98	124.11	nd	52.36 *
1995	256.28	48.32	214.31	304.27	314.84	123.36	404.80	242.59	57.25	268.37	172.00	240.57	nd	nd
1996	86.50	24.05	64.46	105.24	50.92	47.25	231.06	219.12	24.17	46.03	70.60	66.06	56.72 *	23.74 *
1997	107.20	79.03	ns	114.57	138.70	144.59	374.45	213.11	5.52 *	28.64	22.88 *	48.31	nd	nd
1998	73.13	74.46	ns	172.36	201.73	136.00	414.41	183.49	56.52	78.49	143.81	110.50	nd	24.76 *
1999	111.16	68.16	152.76	255.10	174.51	276.34	606.12	252.43	27.78	108.64	171.37	181.76	nd	35.20 *
2000	122.55	42.55	116.41	161.35	96.99	150.52	377.05	224.61	89.86 *	53.87	184.33	125.69	nd	nd
2001	81.93	36.53	ns	146.62	nd	208.50	301.08	161.85	35.85	121.25	121.34	185.89	nd	nd
2002	nd	2.34 *	ns	137.40	112.72	129.30	745.67	178.13	73.86	165.17	165.53	246.95	nd	nd

Table 39: Estimates of biomass (g/100m³) of total Atlantic salmon (all age classes combined) during autumn sampling of Catamaran Brook, 1990-2002. ns = not sampled; nd = not sufficient data to calculate biomass (i.e., numbers or weight data missing).

	Lower Reach				Gorge Reach				Middle Reach				Upper Reach	
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	172.61	147.40	ns	120.90	215.31	ns	ns	ns	128.59	ns	250.55	175.19	ns	34.27 *
1991	206.43	177.92	ns	201.37	413.60	ns	ns	ns	165.57	ns	140.03	271.84	ns	20.91
1992	346.73	184.39	ns	393.91	543.82	ns	ns	ns	186.87	342.12	164.16	322.90	ns	90.55
1993	205.13	104.26	ns	167.12	274.32	ns	ns	ns	130.66	227.39	224.26	240.74	ns	42.11
1994	386.80	207.13	nd	381.80	440.44	263.57	354.20	328.09	111.80	184.92	234.13	252.29	nd	106.80
1995	ns	ns	ns	179.97	198.25	338.47	171.00	250.32	75.85	118.79	122.74	189.03	nd	nd
1996	148.48	87.87	ns	111.50	209.29	189.39	177.57	243.58	26.39	17.54 *	64.61	161.05	ns	nd
1997	220.45	127.67	261.26	140.82	171.42	270.68	330.74	279.90	23.00	85.40	49.76	32.29 *	ns	ns
1998	104.14	68.70	ns	156.66	178.87	237.94	188.35	252.83	52.09	156.67	124.87	104.36	nd	11.83 *
1999	126.49	63.40	123.84	143.07	181.88	106.40	148.99	77.69	16.40	100.13	91.42	78.48	ns	nd
2000	148.08	65.49	ns	346.92	276.28	196.75	329.07	180.86	20.49	ns	115.37	158.89	nd	nd
2001	161.74	66.99	121.26	248.59	275.95	134.45	299.55	187.79	39.86	109.19	105.04	114.87	ns	nd
2002	130.24	43.89	ns	182.79	26.91 *	109.56	263.50	148.52	55.67 *	65.83	165.26	nd	ns	nd

Table 40: Estimates of biomass ($\text{g}/100\text{m}^2$) of total fish (all species combined) during summer sampling of Catamaran Brook, 1990-2002. ns = not sampled; nd = not sufficient data to calculate biomass (i.e., numbers or weight data missing).

	Lower Reach					Gorge Reach			Middle Reach			Upper Reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRJ	MRU	UP	URU
1990	229.47	nd	ns	nd	nd	187.77	450.93	nd	173.38	ns	389.82	368.98	ns	127.16
1991	322.31	136.70	ns	384.19	619.48	293.64	682.41	344.04	259.40	ns	517.48	618.45	ns	198.67
1992	258.74	127.88	ns	366.76	311.78	255.76	530.10	257.38	136.00	ns	372.88	231.38	ns	143.12
1993	252.73	136.46	221.48	312.67	333.85	276.92	447.20	129.40	137.13	157.64	292.65	327.42	ns	69.00
1994	200.37	216.30	284.74	398.16	319.57	229.47	970.16	232.34	181.87	319.54	345.54	248.60	57.16	136.63
1995	347.60	78.66	590.69	317.99	919.26	156.55	423.10	244.63	162.11	1064.81	368.08	449.66	108.37	110.64
1996	180.45	62.29	158.99	138.44	99.83	68.81	261.34	236.69	75.02	196.71	175.07	141.40	172.67	54.82
1997	203.59	136.79	ns	138.83	199.00	284.32	415.88	270.69	120.98	124.01	122.81	213.83	67.03	77.30
1998	193.62	130.35	ns	205.31	309.48	142.30	441.46	210.93	180.21	291.42	275.15	253.56	126.17	124.17
1999	219.19	113.53	313.58	336.57	268.46	358.89	655.65	280.65	296.53	226.48	455.78	455.59	313.19	144.04
2000	269.52	90.11	361.30	190.09	246.81	209.06	420.64	267.93	205.41	223.15	455.18	296.14	254.56	138.26
2001	141.04	72.01	ns	175.98	109.51	368.85	315.92	225.37	104.05	718.14	271.47	326.51	185.67	247.29
2002	67.14	98.21	ns	163.85	329.94	150.31	800.54	233.50	154.62	571.32	337.51	433.66	nd	194.49

Table 41: Estimates of biomass ($\text{g}/100\text{m}^2$) of total fish (all species combined) during autumn sampling of Catamaran Brook, 1990-2002. ns = not sampled; nd = not sufficient data to calculate biomass (i.e., numbers or weight data missing).

	Lower Reach					Gorge Reach			Middle Reach				Upper Reach	
	LBRU	LF	LP	LRI	LRU	GBRU	GRI	GRU	MF	MP	MRI	MRU	UP	URU
1990	200.56	187.23	ns	164.60	249.73	ns	ns	ns	270.08	ns	338.13	251.39	ns	105.28
1991	236.36	206.41	ns	221.33	454.94	ns	ns	ns	265.18	ns	212.04	372.25	ns	101.93
1992	346.73	211.21	ns	434.97	543.82	ns	ns	ns	297.70	453.39	263.14	457.63	ns	218.71
1993	317.02	127.92	ns	221.93	339.17	ns	ns	144.47	256.11	380.33	319.98	330.28	ns	182.43
1994	414.81	236.97	nd	413.42	489.20	269.71	375.93	351.01	281.29	376.06	415.79	453.12	553.72	338.67
1995	ns	ns	ns	219.66	244.42	360.85	242.93	263.30	191.15	320.22	174.98	343.37	174.08	96.62
1996	222.74	102.97	ns	162.36	894.19	228.79	215.73	265.22	133.36	177.14	135.45	302.13	ns	nd
1997	394.52	212.83	606.27	179.52	290.92	336.90	380.83	359.69	212.45	374.26	213.91	260.66	ns	ns
1998	176.32	111.68	ns	183.35	259.01	269.77	219.11	275.93	226.59	156.67	279.64	362.57	75.75	224.64
1999	261.58	99.52	200.68	182.91	245.76	224.97	288.02	105.83	186.75	254.35	297.85	313.17	ns	169.01
2000	308.80	111.57	ns	462.56	404.98	238.19	351.27	219.27	212.59	ns	283.56	401.43	166.98	114.31
2001	286.08	121.56	353.52	300.51	469.14	173.37	308.50	209.87	136.82	318.08	218.44	293.19	ns	83.23
2002	271.96	61.20	ns	196.70	109.44	222.01	309.14	168.40	202.65	300.92	288.34	198.49	ns	ns

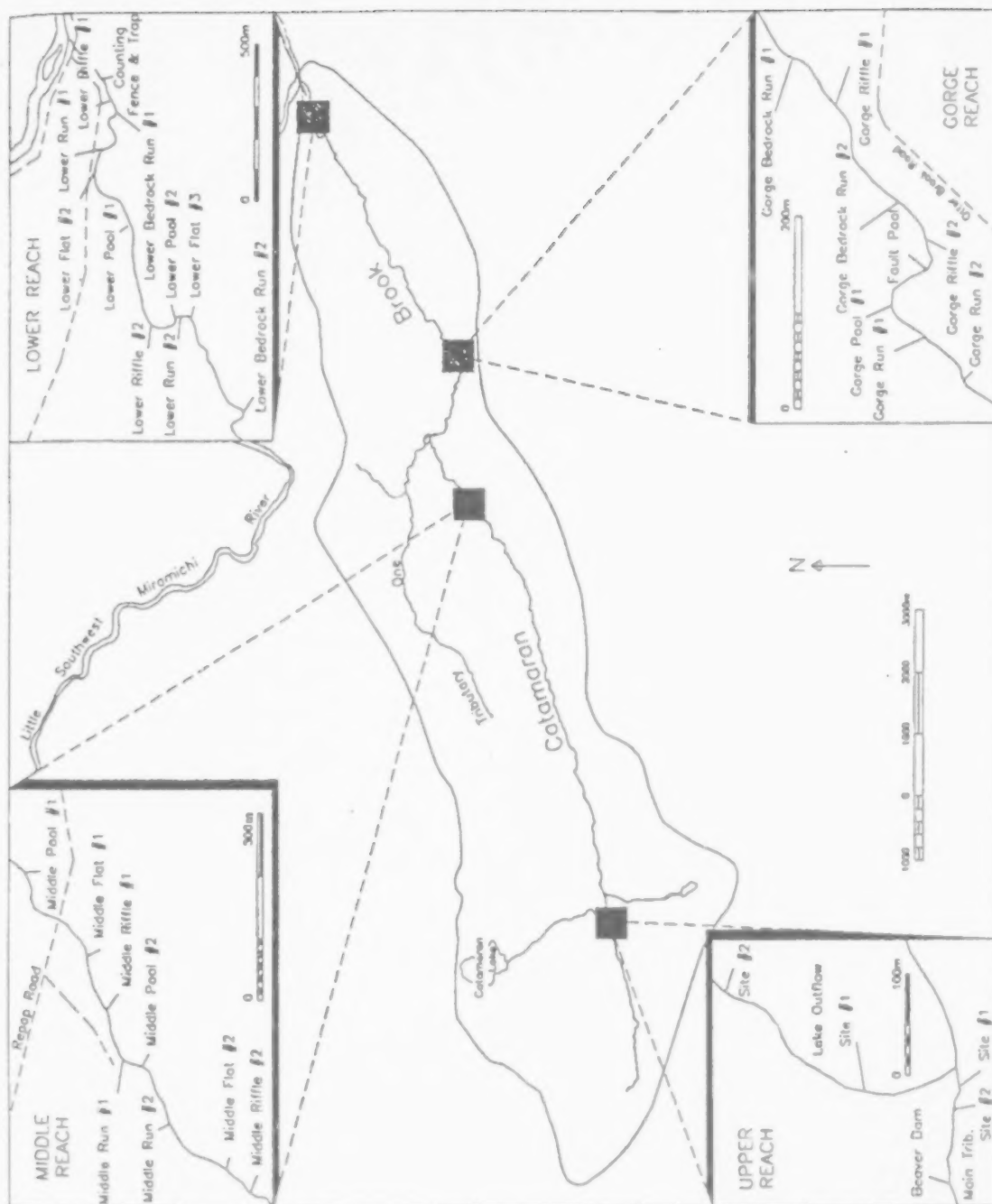


Figure 1: Location of electrofishing sites within reaches of Catamaran Brook. Figure from Cunjak et al. (1993).

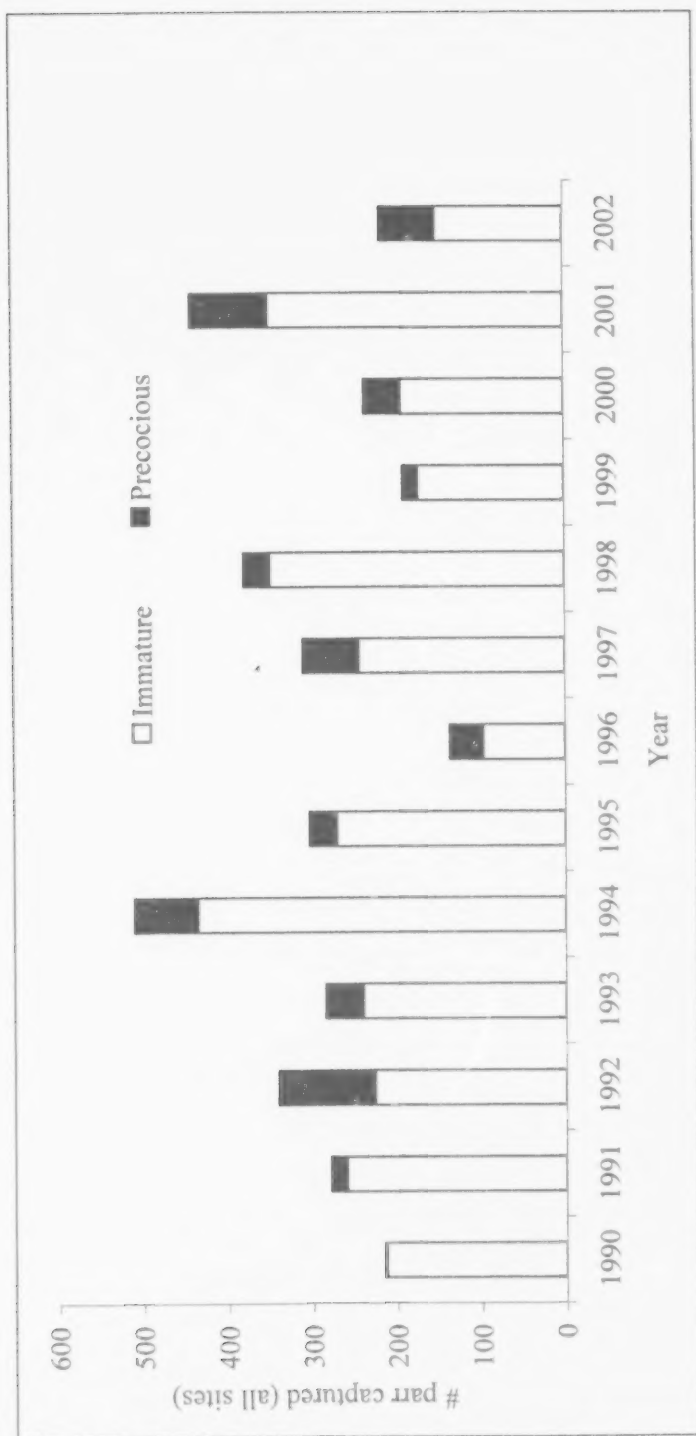


Figure 2: Number of non-precocious (immature) and precocious parr captured at all sites combined during Autumn sampling in Catamaran Brook, 1990-2002.

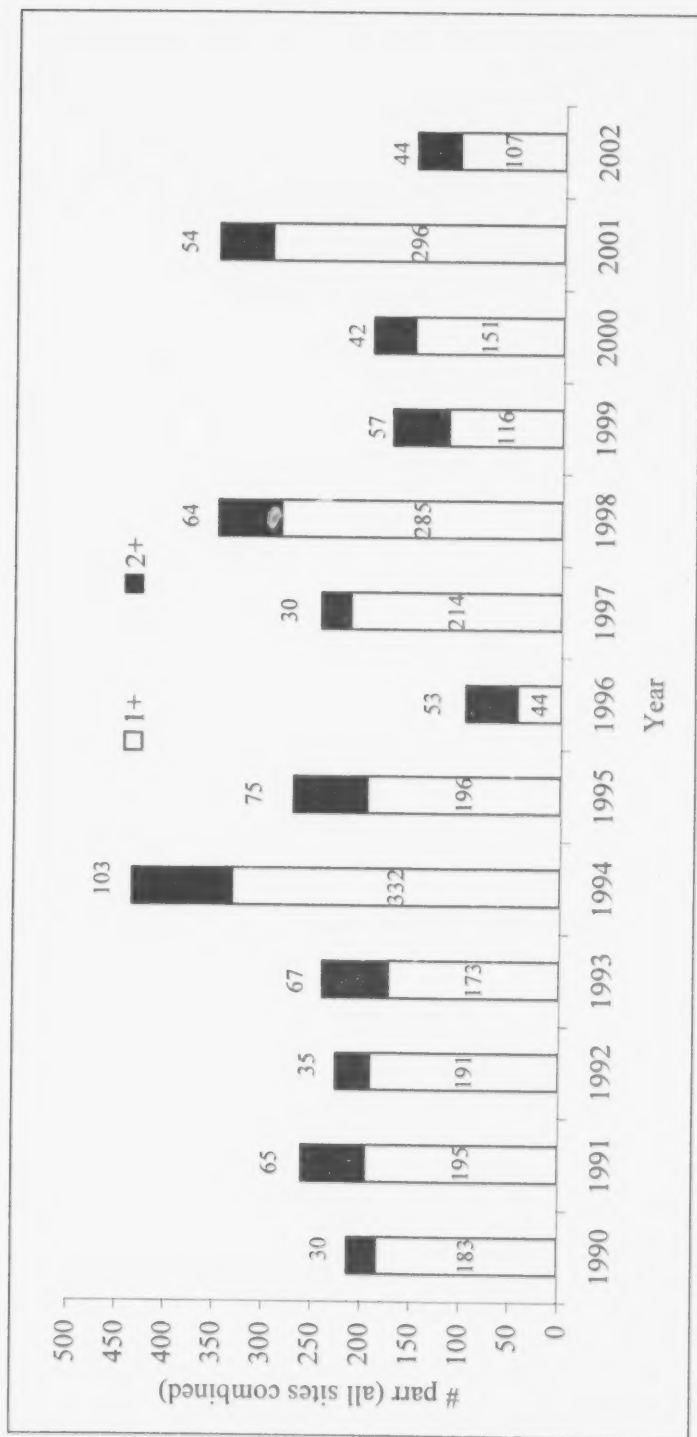


Figure 3: Number of 1+ and 2+ non-precocious parr captured at all sites combined during Autumn sampling in Catamaran Brook, 1990-2002.

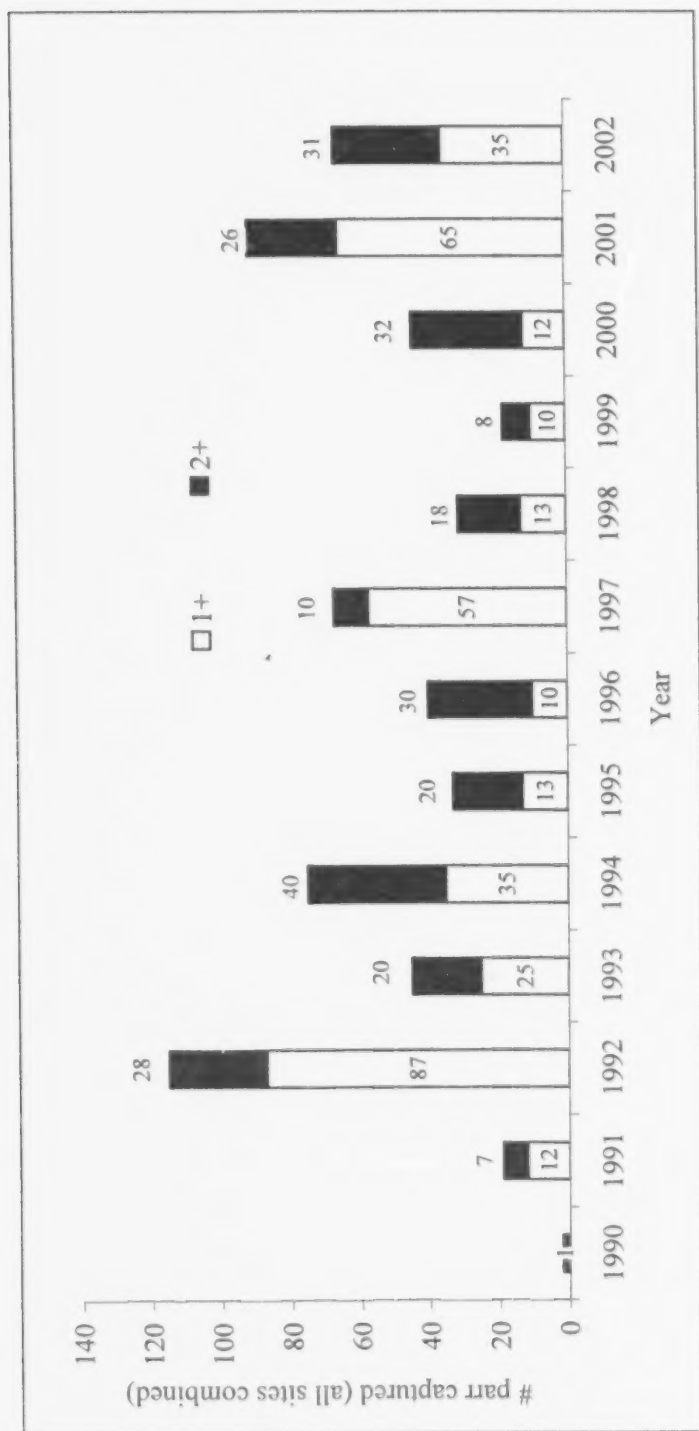


Figure 4: Number of 1+ and 2+ precocious parr captured at all sites combined during Autumn sampling in Catamaran Brook, 1990-2002.

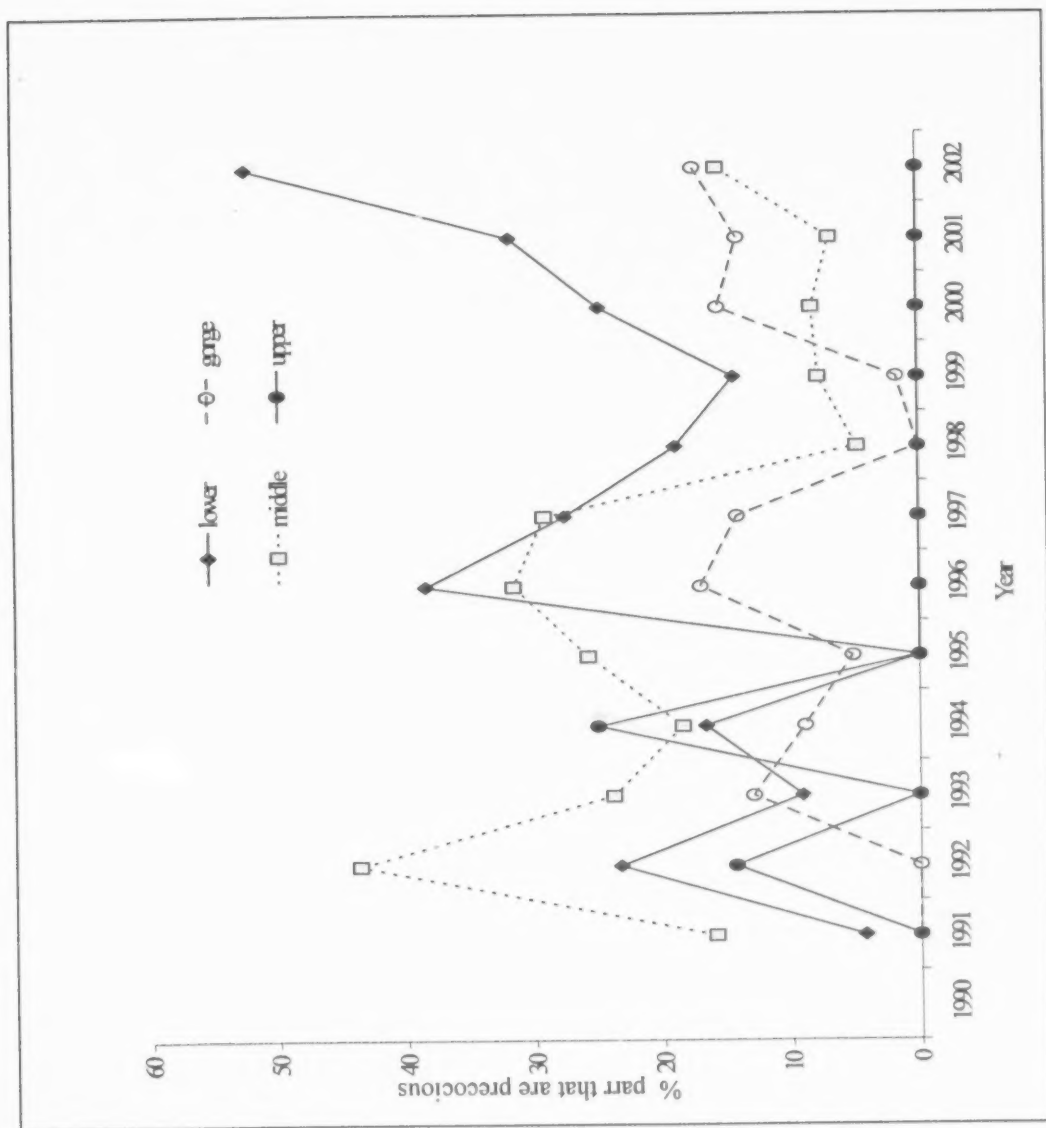


Figure 5: Percentage (number precocious divided by total number of parr captured) precocious parr captured at all sites combined during Autumn sampling in Catamaran Brook, 1991-2002.

Appendix 1: Habitat types by reach, number of replicates, and codes of the four reaches sampled in Catamaran Brook, 1990-2002.

Reach	Habitat Type	# of replicates	Code
Lower	Flat	2	LF
	Pool	2	LP
	Riffle	2	LRI
	Run	2	LRU
	Bedrock Run	2	LBRU
Gorge	Riffle	2	GRI
	Run	2	GRU
	Bedrock Run	2	GBRU
Middle	Flat	2	MF
	Pool	2	MP
	Riffle	2	MRI
	Run	4	MRU
Upper	Pool	3	UP
	Run	4	URU

Appendix 2: Mean area (m^2) of the electrofishing sites during summer electrofishing surveys in Catamaran Brook, 1990-2002. Bracketed values indicate standard deviation. Sample size is 2 except where noted. ns = not sampled.

	Lower Reach				Gorge reach		
	LBRU	LF	LP	LRI	LRU	GBRU	GRU
1990	63.01 (19.46)	213.67 (30.12)	ns	92.48 (9.26)	108.71 (26.61)	125.77 (19.41)	83.84 (23.9)
1991	81.16 (2.07)	154.94 (59.45)	ns	88.17 (0.85)	75.82 (3.78)	94.25 (25.23)	77.25 (34.6)
1992	82.94 (5.33)	158.9 (58.04)	ns	105.24 (8.1)	110.64 (25.61)	131.17 (5.66)	105.8 (34.51)
1993	93.61 (29.71)	173.65 (90.28)	119.73	105.8 (15.83)	109.78 (24.39)	131.84 (12.74)	110.07 (45.18)
1994	83.19 (12.7)	161.47 (65.06)	137.46	103.71 (4.61)	114.18 (34.73)	132.77 (2.1)	98.23 (26.92)
1995	73.19 (0.12)	195.05 (70.35)	123.08	134.67 (41.94)	90.55 (29.47)	115.81 (11.1)	147.69 (18.16)
1996	99.02 (38.51)	173.41 (5.48)	109.01	126.87 (24.18)	114.3 (73.87)	133.43 (41.46)	110.63 (29.84)
1997	92.1 (7.22)	179.11 (5.96)	Ns	149.1 (3.29)	130.51 (50.63)	127.12 (16.37)	98.58 (29.86)
1998	104.49 (4.28)	181.07 (11.92)	Ns	143.57 (43.78)	148.31 (19.31)	138.7 (21.94)	138.52 (21.67)
1999	95.24 (8.04)	128.26 (2.45)	101.85 (14.5)	114.26 (28.48)	145.43 (30.78)	107.85 (6.36)	87.2
2000	74.43 (5.2)	134.8 (52.5)	90.48 (26.74)	151.69 (63.78)	104.45 (5.64)	101.57 (21.24)	100.89 (4.86)
2001	117.07 (19.93)	197.69 (7.87)	ns	206.21 (12.87)	125.01 (13.99)	102.85 (34.7)	117.18 (10.33)
2002	95.55	174.39 (15.31)	ns	142.03 (27.02)	102.42 (15.16)	107.05 (38.55)	113.19 (14.69)

Sample size = LF, LRI, LRU, GBRU and GRI all n=2 for all years

LBRU n=2 for all years except 2002 (n=1)

GRU n=2 for all years except 1999 (n=1)

LP n= 1 (1993-1996); n=2 (1999-2000)

Appendix 2 (con't)

	Middle Reach			Upper Reach	
	MF	MP	MRI	MRU	UP URU
1990	115.96 (0.58)	ns	79.75 (30.75)	70.36 (16.6)	ns 57.33 (11.67)
1991	82.66 (28.06)	ns	74.06 (29.73)	58.78 (8.89)	ns 55.01 (10.83)
1992	123.16	ns	89.24 (25.52)	91.96 (5.55)	ns 69.05 (16.76)
1993	119.04 (6.87)	89.14 (8.34)	70.26 (8.43)	98.47 (41.4)	ns 67.32 (8.77)
1994	110.57 (5.52)	93.13 (4.29)	71.05 (18.55)	54.07 (31.23)	33.26 (2.47) 59.54 (9.46)
1995	110.54 (3.42)	78.39 (8.6)	90.11 (6.38)	47.91 (27.84)	38.77 (22.59) 58.79 (5.71)
1996	119.79 (5.34)	103.66 (2.84)	116.61 (24.12)	85.94 (50.68)	60.29 (21.58) 56.13 (15.51)
1997	119.19 (16.46)	113.28 (19.43)	125.89 (13.1)	54.01 (23.13)	41.12 64.95 (26.72)
1998	119.54 (3.86)	102.7 (12.39)	89.25 (19.3)	80.35 (35.15)	45.42 52.77 (13.05)
1999	85.55 (3.49)	110.33 (16.85)	79.68 (38.54)	52.64 (31.64)	26.52 51.64 (12.3)
2000	92.44 (16.67)	94.66 (19.94)	65.29 (28.26)	66.68 (44.36)	26.26 39.63 (7.2)
2001	94.65 (16.18)	68.63 (17.49)	115.07 (3.19)	55.49 (30.98)	36.57 48.33 (10.82)
2002	98.68 (1.63)	92.91 (16.96)	92.83 (42.22)	43.51 (23.74)	17.26 39.46 (6.91)

MF n=2 all years except 1992 (n=1)

MP n=2 all years of data

MRI n=2 all years

MRU n=2 (1990-1993); 4 (1994-1997; 1999-2002); 6 (1998)

UP n=2 (1994-1995); 3 (1996); 1 (1997-2002)

URU n=4 all years except 1997 (n=5)

Appendix 3: Mean area (m²) of the electrofishing sites during autumn electrofishing surveys in Catamaran Brook, 1990-2002. Bracketed values indicate standard deviation. Sample size is 2 except where noted. ns = not sampled.

	Lower Reach			Gorge Reach		
	LBRU	LF	LP	LRI	LRU	GRI
1990	82.69 (22.81)	167.25 (0.26)	ns	98.31 (28.72)	124.31 (0.91)	ns
1991	88.51 (14.8)	171.39 (38.85)	ns	102.04 (17.66)	117.4 (3.67)	ns
1992	84.78	195.79	ns	91.85	ns	ns
1993	86.16	146.82 (37.72)	ns	110.35 (13.21)	90.71 (27.34)	115.03 (25.21)
1994	76.65 (5.63)	153.71 (49.19)	108.49	114.16 (10.36)	104.11 (32.92)	94.26 (14.9)
1995	ns	ns	ns	115.38	136.88	88.88
1996	101.08 (11.66)	192.21	ns	184.92 (24.7)	118.36 (57.9)	101.86 (39.96)
1997	72.99 (4.23)	186.02	99.38	107.92 (13.37)	127.04 (37.27)	95.14 (64.56)
1998	106.08 (1.52)	178.62 (11.46)	Ns	147.57 (57.1)	190.92 (94.69)	91.18 (7.06)
1999	83.16 (22.29)	135.38 (23.03)	98.4	110.35	124.79 (63.35)	88.85 (8.48)
2000	88.3 (8.75)	213.3 (68.46)	Ns	143.64 (64.73)	106.47 (19.19)	75.22
2001	101.62 (9.83)	164.9 (17.79)	128.96	144.26 (30.78)	74.26 (14.62)	68.45 (4.46)
2002	88.36 (7.23)	180.49 (12.01)	ns	199.15 (14.38)	99.15 (1.17)	74.72

LBRU n=2 all sampled years except 1992-1993 (n=1)

LF n=2 all sampled years except 1992, 1996, 97 (n=1)

LP n= all sampled years

LRI n=2 (1990, 1991, 1993, 1994, 1996, 1997, 1998, 2001, 2002); n=1 (1992, 1995, 1999); n=3 (2000)

LRU n=2 all sampled years except 1995 (n=1)

GBRU n=2 all sampled years except 2002 (n=1)

GRI n=2 all sampled years except 2000 (n=1)

GRU n=2 all sampled years

Appendix 3 (con't):

	Middle Reach			Upper Reach	
	MF	MP	MRI	MRU	UP URU
1990	133.78 (9.3)	ns	87.28 (29.3)	82.58 (2.24)	ns 65.79 (8.07)
1991	145.43 (16.31)	ns	91.59 (21.82)	94.43 (22.57)	ns 60.4 (5.78)
1992	129.06 (12.3)	81.61 (9.11)	83.47 (23.76)	75.1 (3.63)	ns 53.87 (20.86)
1993	118.33 (1.41)	76.45 (4.63)	72.64 (3.39)	113.79 (34.28)	ns 61.99 (11.12)
1994	108.34 (1.13)	88.49 (3.16)	72.66 (33.05)	66.3 (18)	28.46 54.48 (13.2)
1995	127.24 (7.21)	82.86 (38.44)	87.43 (13.32)	92.76 (13.76)	51.43 (24.68) 64.95 (8.54)
1996	130.32	123.69	92.07 (23.23)	55.72 (33.44)	ns 55.83
1997	109.54 (9)	96.85 (2.57)	92.46 (20.05)	63.32 (39.44)	ns Ns
1998	105.31	107.23	91.55 (19.18)	58.44 (51.07)	34.65 57.68 (8.35)
1999	110.44 (17.73)	107.05	81.35 (20.58)	65.75 (53.94)	ns 48.16 (7.63)
2000	99.18 (13.74)	Ns	85.95 (4.46)	50.38 (24.16)	40.92 45.9 (12.36)
2001	103.11 (3.62)	99.81 (7.32)	81.89 (16.13)	60.84 (41.81)	ns 47.57 (9.08)
2002	95.33	108.26 (18.28)	66.09 (6.84)	49.33 (23.38)	ns

MF n=2 all years except 1996, 1998, 2002 (n=1)

MP n=2 all years except 1996, 1998, 1999 (n=1)

MRI n=2 all years

MRU n=2 (1990-1995); n=3 (1996, 1998, 1999); n=4 (1997, 2000-2002)

UP n=2 (1995); n=1 (1994, 1998, 2000)

URU n=4 all sampled years except 1996 (n=1)

Appendix 4: Salmon age class discrimination by fork length (cm) for Catamaran Brook, by reach and season, 1990-2002.

YEAR	REACH	SUMMER			AUTUMN			COMMENTS
		0+	1+	≥ 2+	0+	1+	≥ 2+	
1990	Lower	<5.0	5.0-9.4	>9.4	<7.0	7.0-10.0	>10.0	Upper Reach (Summer) age classes determined for entire brook
1990	Gorge	<5.0	5.0-9.5	>9.5	np	np	np	
1990	Middle	<5.0	5.0-9.2	>9.2	<6.7	6.7-9.6	>9.6	
1990	Upper	<5.0	5.0-9.0	>9.0	np	np	np	
1991	Lower	<5.0	5.0-8.6	>8.6	<6.5	6.5-9.6	>9.6	Upper Reach age classes determined for entire brook
1991	Gorge	<5.6	5.6-9.0	>9.0	np	np	np	
1991	Middle	<5.5	5.5-8.7	>8.7	<6.7	6.7-9.2	>9.2	
1991	Upper	<5.2	5.2-8.8	>8.8	<6.6	6.6-9.6	>9.6	
1992	Lower	<5.4	5.4-8.2	>8.2	<6.0	6.0-9.3	>9.3	Upper Reach age classes determined for entire brook
1992	Gorge	<5.4	5.4-9.1	>9.1	np	np	np	
1992	Middle	<5.4	5.4-9.3	>9.3	<6.6	6.6-9.9	>9.9	
1992	Upper	<5.4	5.4-9.3	>9.3	<6.6	6.6-10.0	>10.0	
1993	Lower	<5.0	5.0-8.5	>8.5	<6.5	6.5-9.0	>9.0	Upper Reach age classes determined for entire brook
1993	Gorge	<5.0	5.0-8.3	>8.3	<6.3	6.3-9.2	>9.2	
1993	Middle	<5.0	5.0-8.7	>8.7	<6.5	6.5-9.4	>9.4	
1993	Upper	<5.0	5.0-9.0	>9.0	<6.4	6.4-9.2	>9.2	
1994	Lower	<5.0	5.0-8.4	>8.4	<6.4	6.4-8.8	>8.8	Upper Reach age classes determined for entire brook
1994	Gorge	<5.0	5.0-8.6	>8.6	<6.4	6.4-9.5	>9.5	
1994	Middle	<5.0	5.0-9.1	>9.1	<6.8	6.8-9.8	>9.8	
1994	Upper	<5.0	5.0-8.8	>8.8	<6.6	6.6-10.0	>10.0	
1995	Lower	<5.6	5.6-9.2	>9.2	<6.9	6.9-9.4	>9.4	Middle Reach (Autumn) age classes determined for entire brook
1995	Gorge	<5.4	5.4-9.6	>9.6	<6.7	6.7-9.9	>9.9	
1995	Middle	<5.6	5.6-9.6	>9.6	<6.7	6.7-9.7	>9.7	
1995	Upper	np	np	np	np	np	np	
1996	Lower	<5.0	5.0-8.6	>8.6	<7.2	7.2-9.4	>9.4	Upper Reach (Summer) age classes determined for entire brook
1996	Gorge	<5.9	5.9-9.8	>9.8	<7.1	7.1-10.3	>10.3	
1996	Middle	<5.2	5.2-8.9	>8.9	<7.1	7.1-9.9	>9.9	
1996	Upper	<5.0	5.0-9.0	>9.0	np	np	np	

Appendix 4 (con't)

YEAR	REACH	SUMMER			AUTUMN			COMMENTS
		0+	1+	>2+	0+	1+	>2+	
1997	Lower	<5.0	5.0-9.6	>9.6	<7.7	7.8-10.1	>10.1	Middle Reach (Autumn) age classes based on age classes determined for entire brook
1997	Gorge	<5.0	5.0-10.0	>10.0	<7.0	7.0-10.3	>10.3	
1997	Middle	<5.0	5.0-10.0	>10.0	<7.0	7.0-10.3	>10.3	
1997	Upper	np	np	np	np	np	np	
1998	Lower	<5.2	5.2-9.4	>9.4	<7.3	7.3-9.8	>9.8	Upper Reach (Summer) age classes based on age classes determined for entire brook
1998	Gorge	<5.0	5.0-10.0	>10.0	<7.0	7.0-10.4	>10.4	
1998	Middle	<5.0	5.0-9.6	>9.6	<7.1	7.1-10.0	>10.0	
1998	Upper	<5.0	5.0-9.1	>9.1	np	np	np	
1999	Lower	<5.5	5.5-9.9	>9.9	<7.0	7.0-10.0	>10.0	Upper Reach (Summer) age classes based on age classes determined for entire brook
1999	Gorge	<5.0	5.0-9.2	>9.2	<6.2	6.2-9.5	>9.5	
1999	Middle	<5.5	5.5-9.9	>9.9	<7.5	7.5-10.5	>10.5	
1999	Upper	<5.5	5.5-9.5	>9.5	np	np	np	
2000	Lower	<5.0	5.0-9.5	>9.5	<6.8	6.8-9.2	>9.2	
2000	Gorge	<5.2	5.2-9.5	>9.5	<6.5	6.5-9.6	>9.6	
2000	Middle	<5.4	5.4-10.0	>10.0	<7.5	7.5-10.2	>10.2	
2000	Upper	np	np	np	np	np	np	
2001	Lower	<5.9	5.9-9.7	>9.7	<7.1	7.1-9.8	>9.8	
2001	Gorge	<5.5	5.5-9.9	>9.9	<6.9	6.9-10.0	>10.0	
2001	Middle	<6.0	6.0-9.7	>9.7	<7.0	7.0-9.7	>9.7	
2001	Upper	np	np	np	np	np	np	
2002	Lower	<5.1	5.1-9.5	>9.5	<7.0	7.0-9.2	>9.2	
2002	Gorge	<5.0	5.0-9.5	>9.5	<6.8	6.8-10.3	>10.3	
2002	Middle	<6.0	7-9.3	>9.3	<7.0	7.0-9.5	>9.5	
2002	Upper	np	np	np	np	np	np	

np=species not present

